SPATIAL DISTRIBUTION OF B HORIZON PROPERTIES IN A PINE FLATWOOD LANDSCAPE: NEW HANOVER COUNTY, NC

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ABSTRACT

The warm humid climate, sandy parent material, needleleaf vegetation, and high water tables of southeastern North Carolina lead to the development of acidic, leached soils known as Spodosols. These soils are defined by a subsurface accumulation of organic matter (Bh horizon). This study tests for relationships between Bh horizons and topography, grain size, depth to water, and surface organic litter in a pine forest on the campus of the University of North Carolina Wilmington.

Two study units were established for sampling: one on a higher, hummocky former dune environment and the other on a lower, flatter shoreface environment. A topographic survey was conducted and point samples were collected to measure soil properties in each study unit. Two soil pits in each unit were described in detail and sampled for laboratory analysis. Piezometers were installed near each pit in order to determine depth to the water table.

The results show that Bh horizons are closely related to topography. In the upper unit, greater depth to the water table (> 2.3 m) allows for greater leaching and decomposition of organic matter restricting the development of B horizons. In the lower unit, a much shallower water table (0.55-1.5 m) creates an environment that favors precipitation of organic matter and inhibits decomposition.

Piezometer data show that in the lower unit, the lower portions of the Bh horizons were saturated about 25% of the time during the study period. In the upper unit, the permanent water table was never observed within the solum. However, in the lower elevations of the upper unit, subsurface clay accumulation in Bt horizons cause episaturation of the overlying soil allowing thin Bh horizons to form.

The relationship between surface leaf litter and Bh horizons is not clear. Leaf litter mass is significantly greater in the upper study unit, but the B horizons contain significantly less organic carbon. These results support the concept of southeastern Coastal Plain Spodosols being controlled mainly by parent material and topography. They also show that prior pedogenesis (development of Bt horizons) can be a precursor to development of Bh horizons in drier landscape positions.

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DEDICATION

To Mom, Dad, and Dan

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Introduction

Overview

The warm humid climate, sandy parent material, needleleaf vegetation, and high water tables of southeastern North Carolina lead to the development of acidic, leached soils known as Spodosols (Daniels et al., 1984). Atlantic Coastal Plain Spodosols are notable for thick, vertically continuous dark subsurface accumulations of organic matter in Bh horizons (Daniels et al., 1976). The high rates of infiltration and clay translocation in this area also lead to the formation of soils with subsurface accumulations of clay in Bt horizons, one of the main characteristics of Ultisols (Buol et al., 2003). Most upland soils with neither Bh nor Bt horizons in this area fall into the Entisol order. The occurrence of Spodosols, Ultisols, or Entisols depends on local variations in five soil forming factors: climate, organisms, topography, parent material, and time (Jenny, 1941). Of these, topography probably has the greatest influence due to its effects on soil drainage and depth to the water table.

This study focuses on Spodosols, Ultisols, and Entisols in a flatwood environment on the University of North Carolina Wilmington (UNCW) campus in New Hanover County, southeastern North Carolina. Characteristics such as topography, hydrology, sedimentology, and organic content of subsurface horizons were mapped in order to better understand the unique conditions under which each of these soils formed. The primary objectives were to test for systematic variations in B horizon properties across topographic gradients, to determine the relationship between the B horizon and seasonal water table fluctuations, to search for sedimentological discontinuities that may control

the formation of B horizons, and to find correlations between surface leaf litter and characteristics of the B horizon.

Soils of Southeastern North Carolina

Spodosols

Spodosols are acidic forest soils characterized by subsurface accumulations of iron and/or aluminum oxides (Bhs horizon) or humus (Bh horizon) that meet the diagnostic criteria of a spodic horizon. These soils form through the process of podzolization, which involves translocation of iron and aluminum oxides combined with organic matter to the B horizon by leaching from the overlying layers (Stobbe and Wright, 1959). Decomposing organic matter (humus) is transported to the Bh horizon by percolation of water through the soil (Fiskell and Carlisle, 1963; Novak and Bertsch, 1991). These soils are typically acidic, with pHs ranging from 4.0 to 5.5 (Soil Survey Staff, 1999). Acidity in this range allows for solubility and mobility of iron and aluminum. This acidity is generated by decomposition of highly acidic organic litter from needleleaf forests (Pettry et al., 1965), resulting in highly acidic surface horizons and an increase in pH with increased depth (Holzhey et al., 1975). The parent material of these soils tends to be quartz-rich sand that contributes to their characteristically low cation exchange capacity, strong acidity, and high rates of infiltration.

Spodosols are typically located beneath cold needleleaf forests of northern latitudes. This environment inhibits organic decomposition and favors leaching during the spring snowmelt when the soil is wet. In contrast, Spodosols of the Atlantic Coastal Plain of the United States form in a humid subtropical climate with long, warm summers,

mild winters, and rainfall between 125–150 cm/yr (Brasfield et al., 1973). Vegetation that produces acidified leaf litter such as slash pine and long leaf pine, along with abundant year-round precipitation, sandy parent material, flat topography, and a shallow water table, lead to the illuviation of organic matter to form thick Bh subsurface horizons in southeastern North Carolina (Daniels et al., 1969; Daniels et al., 1984). These soils are formed in young (late Pleistocene or Holocene) marine deposits that are primarily quartz sand with only minor silt and clay fractions with little iron present (Garman et al., 1981; Goldin and Collins, 1996; Holzhey et al., 1975; Soil Survey Staff, 1999). The sandy texture contributes to podzolization by allowing humus to illuviate through soil pore space instead of being adsorbed onto fine particles (Bravard and Righi, 1990). The Bh horizons on the Carolina Coastal Plain are notable for their black color, high organic carbon content, relatively low iron content, and sometimes their extreme thickness (up to 5-9 m) (Holzhey et al., 1975; Daniels et al., 1976). In some cases, the Bh horizon is cemented to form an impermeable layer known as ortstein (Lee et al., 1988).

Spodosols on the UNCW campus belong to the suborders humods and aquods, and primarily belong to the Murvile, Leon, and Seagate series (Weaver, 1977), although other series have also been identified. The Murville Series is classified as an Umbric Endoaquod. Soils in this series are characterized by frequent saturation and an umbric epipedon, a dark surface horizon with less than 50% base saturation. The Leon Series is classified as an Aeric Alaquod, which experiences frequent saturation, have an ochric epipedon and a thick light-colored albic horizon (E horizon). The Seagate Series is classified as a Typic Haplohumod. Soils in this series are not frequently saturated and contain at least 6% organic carbon in the Bh horizon (USDA-NRCS, 2007).

Ultisols

Ultisols are acidic forest soils characterized by subsurface accumulations of clay (Bt horizons) that meet the criteria of argillic or kandic horizons. Clay horizons form through the process of lessivage, which involves the translocation of clay-sized particles from overlying horizons to the B horizon through soil macropores. The clays are dispersed in an acidic soil solution near the surface and accumulate in Bt horizons by flocculation in a higher-pH setting at depth. Bioturbation concentrates nutrients in the surface horizons and causes base saturation to decrease with depth. The parent material of Ultisols tends to be quartz-rich and highly acidic with few base cations (Buol et al., 2003).

Ultisols are found primarily in humid, subtropical areas of the world on older, stable landscapes. Plentiful year-round precipitation found in the North Carolina Coastal Plain provides an ideal environment for the intense weathering of primary minerals and the translocation of clay to form Bt horizons. Well-developed Ultisols are most common on the older inner part of the Coastal Plain, but they are also found on the outer Coastal Plain where sufficient fines are present in the parent material. The Ultisol most commonly found in the study area belongs to the Baymeade Series, an Arenic Hapludult (Weaver, 1977). Soils in this series are characterized by thick, sandy surface horizons and a clay accumulation in a Bt horizon (USDA-NRCS, 2007).

Entisols

Entisols are characterized by the absence of subsurface diagnostic horizons. Soil forming processes may be in operation, but the impact of these processes does not qualify

as a recognizable diagnostic property other than A horizons (epipedons). In this type of soil, Bt or Bh horizons may occur, but they are discontinuous, weakly developed or they are found more than 2 m below the soil surface and are therefore not recognized as diagnostic horizons by Soil Taxonomy. Entisols are found on surfaces that are very young, wet, dry, or are formed from very resistant parent material. The relatively young surface of the Lower Coastal Plain coupled with wet conditions and resistant parent material inhibit soil development (Buol et al., 2003). The Entisol most commonly found in the study areas belongs to the Kureb Series, a Spodic Quartzipsamment (Weaver, 1977). Soils in this series are characterized by sandy parent material and an incipient Bh horizon that is too weak or discontinuous to qualify as a spodic horizon (USDA-NRCS, 2007).

Formation of Bh Horizons

The formation of Bh horizons in Spodosols involves a variety of topographic, hydrologic, and biogeochemical interactions. Given their dark color, organic content, and flat upper boundaries, Bh horizons have sometimes been interpreted as relict surface horizons buried by aeolian sands (Ab horizons). Previous studies have attempted to test this hypothesis by analyzing pollen abundance in and above Bh horizons (Daniels et al., 1976), by analyzing particle size to detect sedimentological discontinuities near the top of Bh horizons (Pettry et al., 1965), and by mineralogical analysis to detect differences in parent material with depth. Generally, the evidence suggests that the organic matter in Bh horizons is postdepositional, but several authors suggest that depositional features, such

as fine-grained lenses or the presence of base cations in the parent material, may have contributed to the initial stages of Bh horizon formation.

In Southeastern North Carolina a close relationship exists between surface topography, the Bh horizon, and the water table (Pettry et al., 1965; Yuan, 1966). Bh horizons are restricted to soils with a shallow water table and large seasonal fluctuation in the water table (Brasfield et al., 1973; Condron and Rabenhorst, 1994; Tan et al., 1999). The upper boundary of the Bh horizon occurs at roughly the average height of the permanent water table, where the soil is often saturated but where there is also an unsaturated period of free drainage. The saturated period is necessary to dissolve iron and organic compounds, whereas the unsaturated period is necessary to allow these materials to illuviate into the subsurface (Daniels et al., 1976; Harris and Hollien, 2000). Daniels et al. (1978) have demonstrated that the color of sandy Coastal Plain soils is related to the history of groundwater movement.

Besides saturation tendencies, biogeochemical processes also play a significant role in the process of fixing organic matter in Bh horizons, although the processes are not fully understood. Studies suggest at least two major processes by which organic matter is translocated to and fixed in Bh horizons.

The first process involves the translocation of humified organic matter in colloidal suspension. Organic matter from surface horizons may occur as hydrophobic particles dispersed as a colloid under acidic soil-water conditions. These particles are flushed down through soil pores with percolation of rain water. At depth, the organic matter is fixed in the Bh horizon through flocculation favored by higher pH. In this process, organic colloids fill soil pores to create a humus-rich layer with low hydraulic

conductivity and high bulk density (Bloomfield, 1954; Bravard and Righi, 1990; Farmer et al., 1983; Pettry et al., 1965). This process requires fines (silt and clay) from the A and E horizons to be removed in order for the pore spaces to be open, so that humus particles can be mobilized. If fines are present, lessivage will prevail and Bt horizons will form in lieu of Bh horizons.

The second process involves the translocation of dissolved carbon in the form of fulvic and humic acids in soil water (Daniels et al., 1978; Yuan, 1966). Fulvic acid is primarily produced at the surface of the soil through decomposition of pine straw and other coniferous leaf litter. In lower parts of the soil profile, fulvic acid is partially transformed into the heavier and more stable humic acid (Holzhey et al., 1975). The transformed acids are translocated in solution to the water table where carbon precipitates to form the Bh horizon. The chemical processes causing precipitation of carbon seem to involve interaction with Al^{+3} ions in solution in acidic groundwater (Daniels et al., 1976; Yuan, 1966). This process leads to dark stains or coatings of precipitates on sand grains.

The development and persistence of the Bh horizon depend on the balance between inputs, outputs, transformations, and translocations of organic carbon in the soil (Figure 1). Organic matter is introduced into the system mainly as leaf litter. It is humified in the soil O and A horizons by ripening and biotic activity, and subsequently translocated by percolation through the A and E horizons. The organic carbon then accumulates due to interaction with groundwater forming a Bh horizon. Decomposition of the carbon continues throughout this process, including in the residence of the Bh horizon. The most rapid decomposition occurs above the water table in warm oxidizing environments. Leaching may also remove excess organic carbon. The persistence of the

horizon depends on the input of organic composition outweighing the rates of decomposition and leaching.

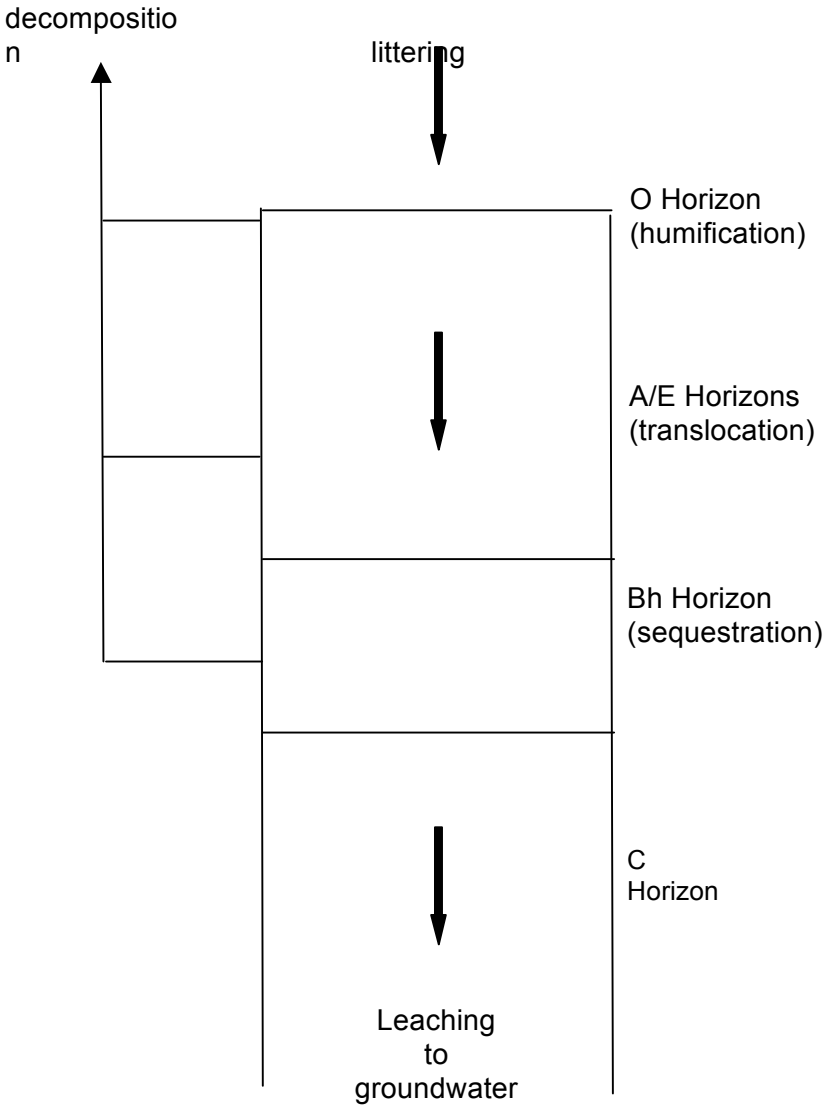

Figure 1. Schematic representation of organic carbon cycling in Spodosols.

Removing leaf litter will deprive the system of organic carbon. If decomposition continues to occur, the Bh horizon cannot persist. Similarly, if the water table is lowered, the rate of organic matter sequestration will drop and decomposition will increase in the newly oxic environment. Where interaction between translocating organic carbon and groundwater does not occur, leaching will dominate causing the Bh horizon to disappear (Amundson, 2001). The formation of Bh horizons can also be hindered by the presence of clay minerals that reduce pore space or salts that act as a flocculant, inhibiting the translocation of humus.

Objectives

The primary objective of this study was to identify controls on B horizon properties and distributions on a pine flatwood landscape in New Hanover County, southeastern North Carolina. Field, laboratory, and statistical methods were applied to determine the relationship between surface topography, water table elevation, particle size, and organic litter in explaining the occurrence and properties of Bh/Bt horizons.

Specific hypotheses tested are the following:

1. Systematic variations in B horizon depth, thickness, and other properties occur across topographic gradients. B horizon depths were determined via point sampling and compared with an established relative elevation. It was expected that there would be an increased expression of Bh horizons in the lower topographic positions due to increased leaching and slower decomposition found in these wetter locations.

2. A correlation exists between Bh horizon boundaries and water table fluctuations. Piezometer data were compared with soil pit descriptions to determine the

period of saturation for various parts of the soil profile. It was expected that Bh horizons will occur at or below the water table.

3. Soil texture influences the upper and lower boundaries of Bh horizons. Sieve data were expected to show that finer textures in the lower B horizon will correspond with increased expression of these horizons due to more efficient trapping of organic colloids. The finer-textured layers may reflect the sedimentology of the parent material, or may be related to pedogenic processes.

4. A correlation exists between surface litter and the organic content and color of Bh horizons. O horizon leaf litter was quantified by weight and compared to the characteristics of the Bh horizons. It was expected that, all other factors being equal, areas of greater litter accumulation would have darker, thicker, or more organic-rich Bh horizons.

Field Area

Two study units were established in the undeveloped flatwood area of the UNCW campus (Figure 2). The upper study unit (elevation ~15 m) is located on the first parcel of land east of Reynolds Drive. The lower study unit (~8 m) is located in the next parcel to the east, adjacent to Rose Avenue. Each study unit is 50 x 100 m in area, and each includes upland pine forest and a small depression. The study units were analyzed by a detailed topographic survey, description of two soil pits, installation and monitoring of piezometers, and additional point sampling as described later. Bh (organic) horizons are abundant in the lower unit, and Bt (clay) horizons are abundant in the upper unit. The contrasts between the study units in terms of topography, water table location, particle

size, and surface leaf litter will assist in defining conditions that hinder or favor Bh horizon development. For the purposes of this study, the Bh horizon is assumed to be in steady state.

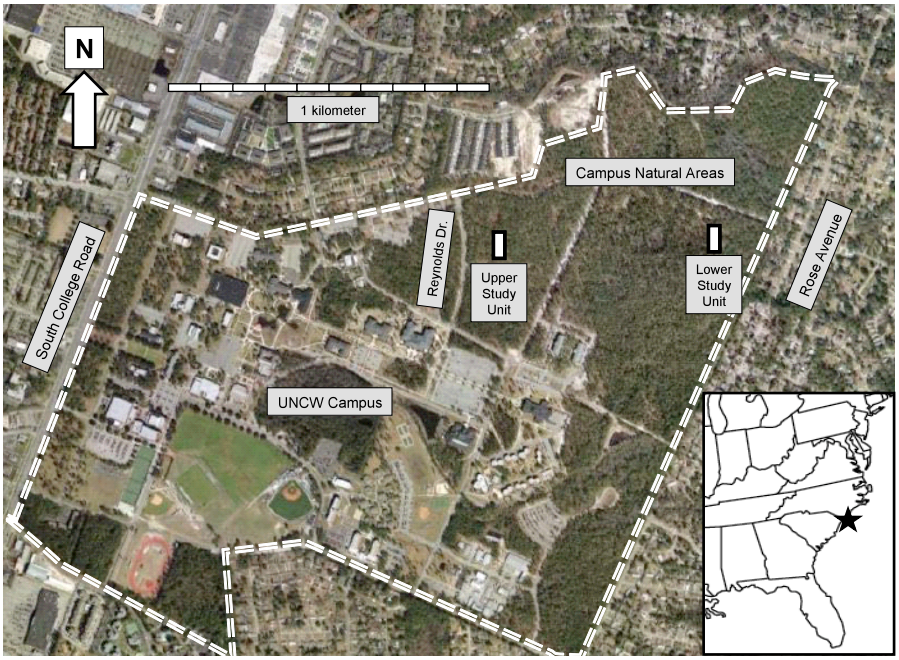

Figure 2. Location of UNCW campus and study units.

Methods

Field

Field work was conducted from May 2006 through December 2007. To determine relative elevation for all sampling and monitoring locations, a detailed topographic survey was conducted in each study unit with a transit level. The surveys were conducted on a 10 x 10 m rectangular grid of sampling points in each study unit (Figure 3). Elevations were determined with a transit level to the nearest centimeter relative to an approximate datum.

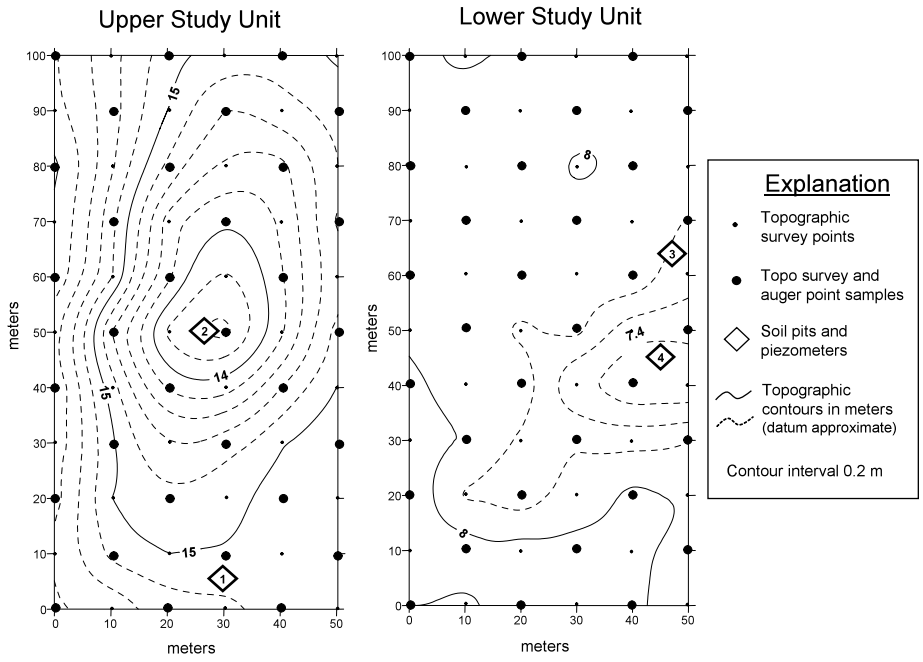

Figure 3. Sampling matrix for the two study units showing locations for topographic, auger, pit, and piezometer data.

Point sampling was used to analyze spatial patterns in B horizon properties in relation to the local topography. A sampling grid of roughly 30 auger holes, each 1.5 m deep, was sampled in each unit using a 6 x 150 cm bucket auger. At each sample point, a sample of the A horizon was collected, and the depth, thickness, and Munsell color of each B horizon sample was recorded. A sample of the B horizon was obtained from the auger and taken to the laboratory for further analysis. In addition, surface organic litter was collected from a 15 x 15 cm area near each auger hole. This leaf litter was separated from mineral matter via #10 sieve, dried, and weighed to determine biomass per unit area at each sample point.

Two soil pits were established along a topographic gradient in each of the study units. Pits 1 and 2 were located in the upper unit and were both 1.3 m deep. Pits 3 and 4 were located in the lower unit and were 1.35 m and 0.75 m deep respectively. Soil profile descriptions were prepared for each pit using standard soil survey methods (Schoeneberger et al., 2002). Detailed profile characteristics included horizons, boundaries, color, texture, structure, consistence, pH, and redoximorphic features. Soil samples were collected at 5 cm intervals from each of the soil pits for laboratory analysis. The detailed profile descriptions and laboratory data were used for taxonomic classification and interpretation.

A groundwater well (piezometer) was installed near each of the soil pits. The well near Pit 1 was 2.04 m, Pit 2 was 3.17 m, Pit 3 was 1.52 m, and Pit 4 was 1.25 m deep. Depth to the water table in each of the wells was monitored on a biweekly basis. These data were compared with the soil profile descriptions to determine if groundwater fluctuations are closely related to the depth of horizon boundaries and type of horizon

identified in the pit descriptions. A major drought began near the start of the monitoring period, limiting useable well data to only 5 months of the study (Nov. 2006 - Mar. 2007).

Laboratory

Samples from soil pits and auger holes were analyzed for particle size, organic carbon content, and pH (Table 1). Samples were analyzed at the Soil and Sedimentology Laboratory in DeLoach Hall at UNCW, except for particle size analysis of the pit samples, which were analyzed at the Sediment Dynamics Laboratory at the UNCW Center for Marine Science.

Point Samples	Pit Samples
Elevation	Elevation
Depth to B horizon	Depth (5 cm intervals)
Color of B horizon	Soil properties: color, structure, consistence, redox features, etc.
Texture at 1.0 Φ intervals	Texture at 0.5 Φ intervals
% organic carbon in B horizon	% organic carbon
pH of B horizon	pH
Organic litter at surface	

Table 1. Types of data generated for each sample type.

Physical Properties

Particle size analysis was conducted on subsamples of roughly 10 g dry weight. The samples were treated in a solution of 20 mL distilled water, 5 mL glacial acetic acid,

and 30% hydrogen peroxide to digest organic matter (if necessary). The pretreated mineral soil from the point samples was passed through a #230 sieve to separate the sand from the mud (silt + clay) fraction. The sand fraction was then passed through a stack of sieves in an ATM L3P Sonic Sifter to determine percent sand in fractions at 1.0 phi intervals. The pretreated mineral soil from the pit samples was passed through a #18 sieve to remove gravel-sized particles. The retained fraction from soil pit samples was then suspended in a solution of distilled water and sodium hexametaphosphate (HMP) and run through a Beckman Coulter LS 200 Particle Counter. This analysis identified nineteen size classes from 11 to -1 phi.

The dry weight of O horizon samples from each point sample was determined in the laboratory. To separate mineral grains that were often mixed in to the O horizon, the entire sample was passed through a #10 sieve. Soil particles passing through the sieve were discarded, and fibrous organic matter was retained. The remaining organic matter was then dried and weighed. Some very fine organic particles passed through the sieve, but their weight was considered inconsequential relative to the large mass of organic matter retained.

Chemical Properties

To determine the role of acidity in the migration of organic matter within the solum, pH was measured from the pit samples. Soil pH for the samples was determined to the nearest 0.001 units using a Fisher Automated pH Meter. Fifteen grams of each sample was dried and crushed, then soaked in a 1:1 mixture of soil to steam distilled

water before pH measurement. During measurement, samples were kept in suspension with a magnetic stirring bar.

The Walkley-Black method (Singer and Janitsky, 1986) was used to determine organic carbon in the B horizon of the point samples and in all of the pit samples. This method is more accurate than combustion methods of organic matter determination and provides sufficient accuracy for soil taxonomic classification. A key parameter in this study is the organic carbon content of the Bh horizons, which must be greater than 0.6% to qualify as a spodic horizon (Soil Survey Staff, 1999). A roughly 0.75 g portion of each sample was used, although less was used in samples with large amounts of organic carbon (specifically, the samples in the upper 30 cm of Pit 4). For each sample, 10 mL potassium dichromate ($K_2Cr_2O_7$) was added to digest the organic carbon and 20 mL sulfuric acid was added to act as a catalyst. After one hour to allow complete digestion, approximately 200 mL of steam distilled water was added and the sample was allowed to cool overnight. The sample was then titrated with ferrous sulfate ($FeSO_4$) in the presence of a ferroin indicator solution to determine the amount of potassium dichromate that was consumed in the organic digestion.

Statistics

Field and laboratory data were used to test for differences in soil properties between the upper and lower study units and to test for correlations among soil variables. Difference of means t-tests were conducted to test for differences between upper and lower study unit for pit data, including horizon depth, color, texture, surface litter mass, pH, and organic content. The auger data were also used to test for correlations between

soil properties (horizon depth, thickness, pH, organic carbon) and controlling factors (elevation, litter mass, soil texture) within each study unit.

All statistical analyses were performed using Microsoft Excel or SigmaPlot/SigmaStat software. Grain size data, including Coulter counter output for pit samples and sonic sifter output for auger samples, were processed using the Gradistat package for Microsoft Excel (Blott and Pye, 2001). Smoothed contour maps were generated in Surfer software to show the variation of soil properties across each of the study units. Output from Gradistat includes grain size parameters such as USDA texture class, sorting, skewness, and kurtosis (see Appendix 3). Other analytical methods involved comparison of soil profile descriptions with official soil survey descriptions and investigation of depth-duration curves from piezometer data.

Results

Point Samples

Soil properties in the two study units are governed by the five soil forming factors: climate, organisms, relief, parent material and time (Jenny, 1941). The climate and age of the units are very similar given their relatively close proximity to each other. However, the study units exhibit differences in flora, relief, and parent material. Maps of each of the variables examined may be found in Appendices 1 and 2.

The vegetation in the study area is a longleaf pine forest with turkey oak and various shrubs in the understory and various grasses, ferns, and mosses in the ground layer. The upper unit has a thicker canopy than the lower unit, resulting in a significantly greater amount of surface litter (Table 2). The lower unit includes one section near Pit 4 with no trees or shrubs. This area is subject to frequent saturation and ponding after heavy rains. Despite a thinner canopy and less surface litter in the lower unit, the B horizons tend to be darker as illustrated by lower Munsell values and chromas.

The upper unit has a higher elevation and greater relief than the lower unit. These differences reflect the depositional environments of the two study units. Both study units are typical of the beach-barrier deposits that occupy most of the Lower Coastal Plain (Soller and Mills, 1991). The upper unit is likely a backshore dune ridge. It is located near the highest point on the UNCW campus, in an area of hummocky topography with soils composed of moderately well sorted medium sand. The lower unit is likely a subtidal shoreface. It is located about 0.5 km ocean-ward of the upper unit, at the base of a long gentle slope that probably represents a former beach.

			Elevation (m)		Depth to B (cm)		Elevation of B (m)		Value of B		Chroma of B	
		n	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Upper	**All**	33	14.94	0.56	47.67	19.49	14.47	0.62	4.27	0.91	5.42	1.44
	Spodosol	5	14.06	0.28	52.00	16.81	13.54	0.42	3.20	1.10	4.00	1.87
	Ultisol	10	15.25	0.40	52.10	19.89	14.73	0.43	4.30	0.82	5.30	1.16
	Entisol	18	15.02	0.45	44.00	20.19	14.58	0.53	4.56	0.70	5.89	1.23
Lower	**All**	33	7.91	0.17	45.06	15.58	7.46	0.19	2.24	0.44	1.88	1.02
	Spodosol	27	7.91	0.19	43.22	13.62	7.48	0.19	2.07	0.27	1.56	0.58
	Ultisol	6	7.92	0.08	53.33	22.29	7.38	0.18	3.00	0.00	3.33	1.37
	p value		**0.00**		0.55		**0.00**		**0.00**		**0.00**	

			Mud in A (%)		Mud in B (%)		Litter in O (g/cm^2)		pH of B		OC of B (%)	
		n	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Upper	**All**	33	2.05	0.81	2.46	1.15	0.83	0.35	3.87	0.22	0.42	0.43
	Spodosol	5	2.70	1.09	4.24	1.39	0.86	0.58	3.87	0.13	1.12	0.81
	Ultisol	10	1.47	0.39	2.54	0.83	0.98	0.42	3.82	0.25	0.29	0.11
	Entisol	18	2.18	0.72	1.92	0.65	0.75	0.22	3.89	0.23	0.31	0.14
Lower	**All**	33	1.25	0.56	4.15	1.86	0.59	0.24	3.82	0.22	1.44	0.71
	Spodosol	27	1.34	0.56	4.26	1.88	0.61	0.23	3.78	0.19	1.67	0.55
	Ultisol	6	0.83	0.42	3.63	1.40	0.52	0.30	3.98	0.30	0.44	0.10
	p value		**0.00**		**0.00**		**0.00**		0.38		**0.00**	

Table 2: A statistical summary of soil properties in the upper and lower field study units. The data in each study unit are stratified by soil order. Difference-of-means tests (two sample, two-tailed t-test assuming equal variance) were applied to the entire sample from Each unit to test for significant differences. Significant differences ($p<0.05$) are shown in bold. OC refers to organic carbon, and A, B, and O refer to A, B, and O horizons respectively.

scarp. The topography of the lower unit is flatter and the soils contain coarser sand with well-rounded pebbles.

The point sampling data were used to prepare a soil map of each study unit (Figure 4). The classifications are based on the soil moisture regime and presence or absence of Bh and Bt horizons in the subsurface. Soils in the upper unit are composed mostly of Entisols of the Kureb series, as indicated by the lack of a B horizon. The low-lying portion of the upper unit is occupied by Spodosols of the Seagate series, which have a thin but organic-rich Bh horizon over a Bt horizon. Some of the flat upland areas are occupied by Ultisols of the Baymeade series, with a weakly-developed Bt horizon but no Bh horizon present. The lower unit is dominated by Spodosols of the Leon series, which have a leached E horizon over a shallow Bh horizon. Some Spodosols in the lower unit may be classified as Murville series (thick, shallow Bh horizons, with no E horizon). Small areas of Entisols (Kureb series) are also present where no Bh horizon was identified.

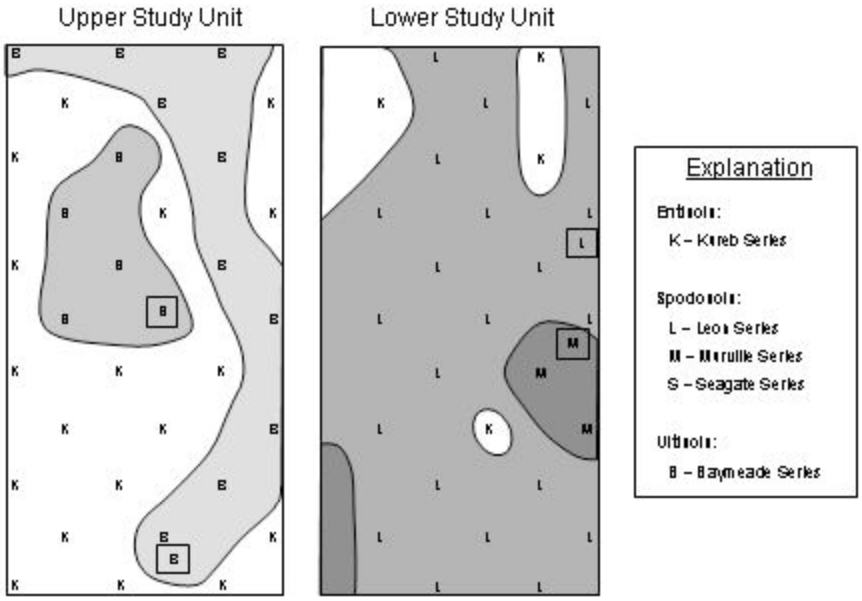

Figure 4: Soil maps of the upper and lower units based on point sampling.

The point data were also used to test for correlations between variables within each study unit (Tables 3 and 4). The strongest correlations exist between soil properties and elevation/depth parameters (surface elevation, B horizon elevation, depth to B horizon). Soils in the lower landscape positions of the upper unit are associated with darker colors, more organic carbon, slightly higher pH, and more mud in the B horizon. In the lower study unit, where the topography is more level, elevation is not strongly correlated with soil properties. Instead, organic carbon in the B horizon is correlated with depth to B horizon.

Upper Unit - all (n= 33)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	-0.15	1.00								
Elevation of B (m)	**0.95**	**-0.45**	1.00							
Value of B	**0.35**	-0.21	**0.38**	1.00						
Chroma of B	0.32	-0.19	**0.35**	**0.79**	1.00					
Mud A (%)	-0.23	**-0.35**	-0.09	0.14	0.21	1.00				
Mud B (%)	**-0.38**	0.17	**-0.40**	**-0.41**	**-0.36**	**0.38**	1.00			
Surface Litter (g/cm^3)	-0.11	**0.40**	-0.23	-0.11	-0.16	-0.04	**0.54**	1.00		
pH of B	-0.31	0.29	**-0.38**	-0.16	-0.11	-0.31	-0.25	-0.21	1.00	
OC of B (%)	**-0.54**	0.14	**-0.53**	**-0.64**	**-0.51**	0.28	**0.76**	**0.41**	-0.06	1.00

Upper Unit - od (n= 5)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	-0.72	1.00								
Elevation of B (m)	**0.96**	**-0.89**	1.00							
Value of B	0.74	-0.57	0.72	1.00						
Chroma of B	0.83	-0.68	0.83	0.73	1.00					
Mud A (%)	0.45	**-0.89**	0.66	0.42	0.65	1.00				
Mud B (%)	-0.52	0.04	-0.36	-0.83	-0.49	0.13	1.00			
Surface Litter (g/cm^3)	-0.66	0.17	-0.51	**-0.87**	-0.58	0.05	**0.98**	1.00		
pH of B	-0.10	0.70	-0.35	-0.05	0.04	-0.65	-0.47	-0.39	1.00	
OC of B (%)	-0.61	-0.01	-0.40	-0.69	-0.58	0.20	**0.93**	**0.94**	-0.64	1.00

Table 3: Correlation matrices for variables in the upper study unit. The linear correlation coefficient (r) is shown for each pair of Variables in the point sampling grid. Data are shown for the entire study unit (all) and stratified by soil order. The number of Observations in each sample is given by “n”. Statistically significant correlations (at α=0.05) are shown in bold.

Upper Unit- ult (n= 10)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	0.11	1.00								
Elevation of B (m)	**0.89**	-0.36	1.00							
Value of B	0.15	0.00	0.14	1.00						
Chroma of B	0.36	0.07	0.31	**0.71**	1.00					
Mud A (%)	-0.15	0.14	-0.21	0.58	0.19	1.00				
Mud B (%)	0.05	0.57	-0.22	0.50	0.23	**0.72**	1.00			
Surface Litter (g/cm^3)	0.03	0.34	-0.13	0.36	0.14	**0.66**	**0.89**	1.00		
pH of B	-0.59	-0.12	-0.50	-0.36	-0.13	-0.56	-0.57	**-0.65**	1.00	
OC of B (%)	-0.29	0.05	-0.29	-0.50	-0.22	-0.01	0.08	0.08	0.26	1.00

Upper Unit- ent (n= 18)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	-0.23	1.00								
Elevation of B (m)	**0.93**	**-0.57**	1.00							
Value of B	-0.16	-0.17	-0.07	1.00						
Chroma of B	-0.15	-0.09	-0.10	**0.75**	1.00					
Mud A (%)	0.16	-0.41	0.29	0.31	0.30	1.00				
Mud B (%)	0.21	-0.20	0.25	0.06	0.12	**0.55**	1.00			
Surface Litter (g/cm^3)	-0.34	**0.60**	**-0.51**	0.19	0.08	-0.20	0.00	1.00		
pH of B	-0.34	**0.54**	**-0.49**	-0.16	-0.22	-0.43	-0.16	0.34	1.00	
OC of B (%)	0.14	0.44	-0.05	-0.45	-0.19	-0.21	0.34	0.30	0.04	1.00

Table 3 (cont)

Lower Unit- all (n= 33)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	0.32	1.00								
Elevation of B (m)	**0.64**	**-0.53**	1.00							
Value of B	0.01	0.32	-0.25	1.00						
Chroma of B	-0.23	0.03	-0.22	**0.70**	1.00					
Mud A (%)	-0.17	-0.27	0.07	**-0.35**	-0.01	1.00				
Mud B (%)	-0.17	-0.01	-0.14	-0.01	-0.07	0.10	1.00			
Surface Litter (g/cm^3)	0.27	0.18	0.10	-0.08	-0.17	0.12	0.18	1.00		
pH of B	-0.16	0.01	-0.15	**0.38**	**0.44**	-0.19	-0.11	-0.14	1.00	
OC of B (%)	-0.09	**-0.37**	0.22	**-0.60**	**-0.53**	0.16	0.11	0.04	-0.28	1.00

Lower Unit- od (n= 27)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	0.33	1.00								
Elevation of B (m)	**0.74**	-0.38	1.00							
Value of B	-0.01	0.25	-0.19	1.00						
Chroma of B	-0.35	0.23	**-0.50**	**0.47**	1.00					
Mud A (%)	-0.17	-0.16	-0.05	-0.12	0.22	1.00				
Mud B (%)	-0.18	-0.02	-0.16	0.20	0.03	0.07	1.00			
Surface Litter (g/cm^3)	0.30	-0.02	0.31	0.07	0.15	0.17	0.10	1.00		
pH of B	-0.13	0.23	-0.28	0.20	0.26	-0.06	-0.08	0.04	1.00	
OC of B (%)	-0.11	-0.35	0.13	-0.10	-0.15	-0.10	0.04	-0.08	-0.08	1.00

Table 4: Correlation matrices for variables in the lower study unit. The linear correlation coefficient (r) is shown for each pair of Variables in the point sampling grid. Data are shown for the entire study unit (all) and stratified by soil order. The number of Observations in each sample is given by “n”. Statistically significant correlations (at α=0.05) are shown in bold.

Lower Unit- ent (n= 6)	Elevation (m)	Depth to B (cm)	Elevation of B (m)	Value of B	Chroma of B	Mud in A (%)	Mud in B (%)	Litter in O (g/cm^2)	pH of B	OC of B (%)
Surface Elevation	1.00									
Depth to B (cm)	0.63	1.00								
Elevation of B (m)	-0.35	**-0.95**	1.00							
Value of B	NA	NA	NA	1.00						
Chroma of B	-0.68	**-0.80**	0.68	NA	1.00					
Mud A (%)	-0.27	-0.43	0.41	NA	**0.81**	1.00				
Mud B (%)	0.03	0.21	-0.24	NA	0.03	-0.08	1.00			
Surface Litter (g/cm^3)	0.21	**0.83**	**-0.92**	NA	-0.55	-0.46	0.54	1.00		
pH of B	-0.69	-0.72	0.58	NA	0.35	-0.16	-0.04	-0.44	1.00	
OC of B (%)	0.03	-0.06	0.09	NA	-0.46	-0.63	-0.69	-0.22	0.33	1.00

Table 4 (cont)

Aside from elevation and depth, organic carbon in the B horizon is significantly related to other soil properties. As expected, greater organic carbon is associated with darker colors (lower Munsell value and chroma) in both study units. In the upper study unit, organic carbon in the B horizon is significantly correlated with mud content in the B horizon. This correlation is especially strong for the Spodosols subset of the upper unit, which are located in the lower landscape positions. There is no correlation between organic carbon and mud in the B horizons of the lower study unit.

If surface litter were a significant control on the formation of Bh horizons, a strong positive correlation would be expected between surface litter and B horizon properties such as organic carbon and Munsell value. The upper unit data show a significant positive correlation of surface litter to percent organic carbon in the Bh horizon, and an especially strong correlation within the Spodosol subgroup. There was no correlation between these variables in the lower unit, either overall or within the Spodosol subgroup.

Soil Pits

Soil pits were established as part of this study in order to characterize the thickness and expression of soil horizons in detail, as well as their placement in relation to each other and to the water table. Two pits were dug in each of the study units: one on a flat upland and one in a depression. Each pit was described and sampled according to standard soil survey procedures (Schoeneberger et al., 2002). Taxonomic classifications for the soil pits are approximate, because some of the necessary technical tests (cation

exchange capacity, % base saturation, total extractable iron) were not performed for this study.

Pit 1 is located on the upland section of the upper unit, near the highest elevation of the entire study area. The pit includes sandy A and E horizons over an E/Bh horizon (Table 5, Figure 5). The E/Bh designation is used to describe an E horizon in which there are discrete masses of Bh materials intermixed. The Bh horizon masses are not continuous and/or not thick enough to qualify as a spodic horizon. Under the E/Bh horizon lies a Bt horizon, which contains an increased percentage of clay as compared to the overlying layers. The pH is extremely acidic (pH 3.5 to 4.4) throughout. The texture varies from sand to coarse sand, with few granules in the A, E, and E/Bh horizons. The diagnostic features of Pit 1 include an ochric epipedon, an arenic feature (zone of sandy sediment in the A, E, E/Bh horizons) and an argillic subsurface horizon. Pit 1 is classified as part of the Baymeade series, which falls into the suborder udult. It is classified as an Ultisol based on the presence of an argillic horizon and an udic soil moisture regime.

Soil Pit 2 is located in the depression of the upper unit, in an area of dense shrubs and thick organic litter. The soil includes thick, sandy A and E horizons over a dark Bh horizon with a clear upper boundary (Table 6, Figure 6). Beneath the Bh horizon is a second sequum with a sandy E' horizon overlying a thick loamy Bt horizon containing up to 10% clay. Soils with multiple E-B horizon couplets, called "bisequal" soils, are mapped throughout New Hanover County (Weaver, 1977). They are thought to form due to large groundwater fluctuations in sandy soils above an impermeable layer. The pH is strongly acid (pH 5.1 to 5.5) to ultra acid (pH < 3.5), with slight increases in acidity at the surface and at the top of the Bt horizon.

Pit 1
Baymeade
Arenic Hapludult

Oi-- 2 to 0 cm; pine straw, leaves, cones, and twigs.

A-- 0 to 5 cm; very dark grayish brown (10YR3/2); coarse sand with few granules; loose; structureless single grained; extremely acid; clear wavy boundary.

E-- 5 to 38 cm; light gray (10YR7/1); coarse sand with few granules; loose; structureless single grained; extremely acid; clear wavy boundary.

E/Bh-- 38 to 82 cm; very pale brown (10YR7/4) and dark yellowish brown (10YR4/6); coarse sand with few granules; very friable to friable; weak medium subangular blocky structure; extremely acid; clear wavy boundary.

Bt-- 82 to 108 cm; yellowish brown (10YR5/8); sand; friable; weak medium subangular blocky structure; extremely acid; clear wavy boundary.

C-- >108 cm; light gray (10YR7/2); coarse sand; very friable; weak medium subangular blocky structure; extremely acid.

Table 5. Soil description of the upper pit in the upper study unit using terminology of Schoeneberger et al. (2002).

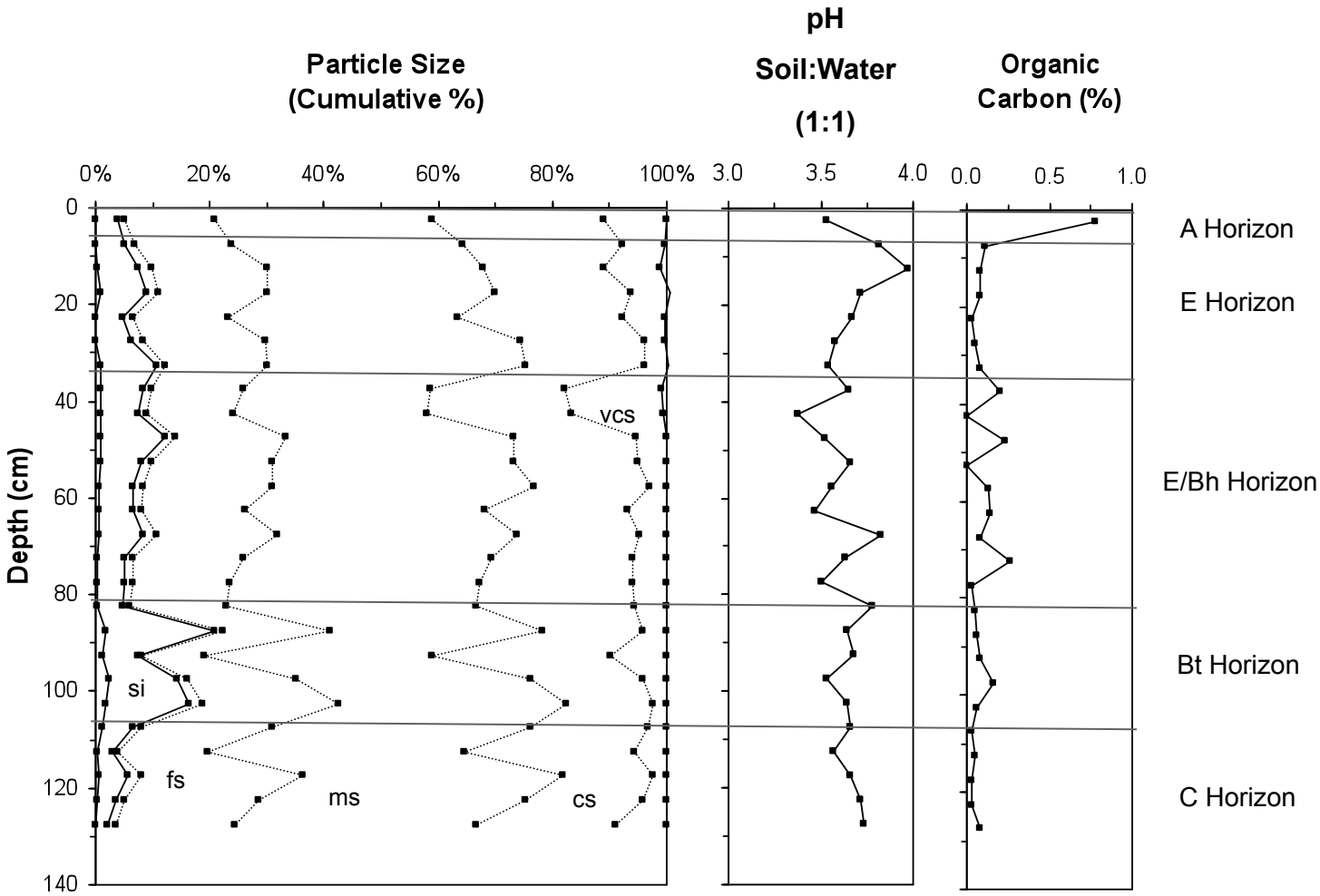

Figure 5. Soil profile data and description for Pit 1, upper soil pit at the upper study unit. Breaks between clay (c) and silt (si), silt and sand, and very coarse sand and gravel (gr) are denoted by solid lines. Dotted lines within the cumulative particle size graph denote (left to right) breaks between very fine sand (vfs), fine sand (fs), medium sand (ms), coarse sand (cs) and very coarse sand (vcs).

Pit 2
Seagate
Typic Haplohumod

Oi-- 3 to 0 cm; pine straw, leaves, cones, and twigs.

A-- 0 to 22 cm; very dark gray (10YR3/1); coarse sand; loose; structureless single grained; extremely acid; clear smooth boundary.

E-- 22 to 28 cm; gray (10YR5/1); loamy coarse sand; loose; structureless single grained; extremely acid; clear wavy boundary.

Bh-- 28 to 38 cm; dark brown (10YR3/3); loamy sand; friable; weak medium subangular blocky structure; extremely acid; gradual wavy boundary.

E'-- 38 to 62 cm; light brownish gray (10YR6/2); loamy sand with few granules; very friable; weak medium subangular blocky structure; extremely to strongly acid; clear wavy boundary.

Bt-- 62 to 105 cm; brown (10YR5/3); sandy loam; friable; weak medium subangular blocky structure; common yellowish brown (10YR5/6) Fe^{3+} masses; ultra to extremely acid; clear broken boundary.

C/Bt-- >105 cm; light gray (10YR6/1) and brown (10YR5/3); sand and sandy loam; very friable to friable; weak medium subangular blocky structure; ultra to extremely acid.

Table 6. Soil description of the lower pit in the upper study unit using terminology of Schoeneberger et al.(2002).

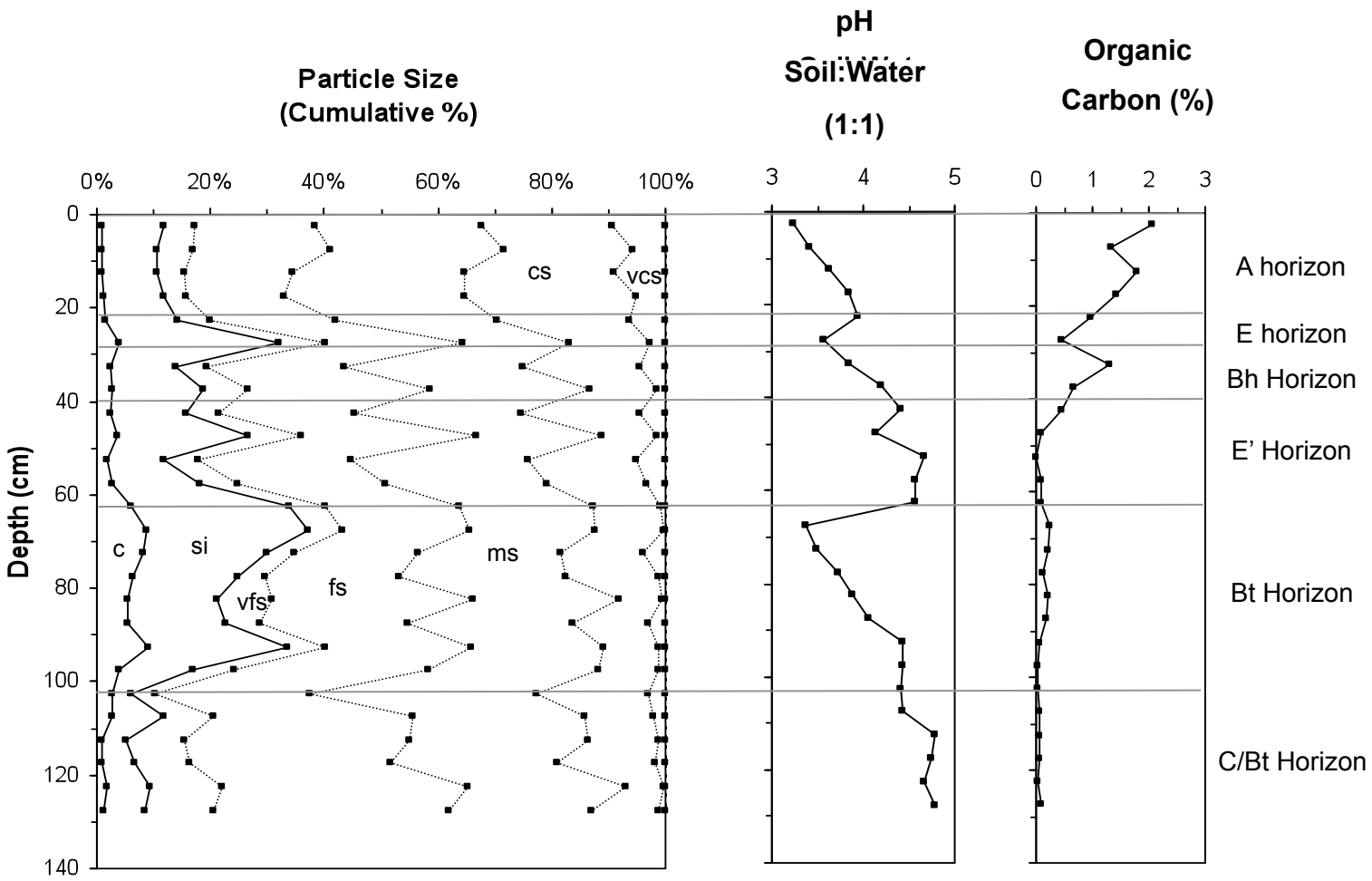

Figure 6. Soil profile data and description for Pit 2, lower soil pit at the upper study unit. Breaks between clay (c) and silt (si), silt and sand, and very coarse sand and gravel (gr) are denoted by solid lines. Dotted lines within the cumulative particle size graph denote (left to right) breaks between very fine sand (vfs), fine sand (fs), medium sand (ms), coarse sand (cs) and very coarse sand (vcs).

The texture of this soil varies from coarse sand near the top of the pit to sandy loam at the bottom, with a few granules in the E' horizon. Increases in clay and silt coincide with the Bt horizon and there is a sharp increase in silt near the bottom of the E horizon (24 cm below the surface). The diagnostic features in Pit 2 include an ochric epipedon (weakly developed A horizon), a spodic subsurface horizon (Bh horizon with > 0.6% organic carbon), and an argillic subsurface horizon (Bt horizon with illuvial clay accumulation). Pit 2 is classified as part of the Seagate series, which falls into the suborder humod. It is classified as a Spodosol based on the presence of a spodic horizon, and a humod based on the lack of aquic (saturated) conditions. Technically, a humod requires a spodic horizon with 6% organic carbon or more, but this series is mapped extensively throughout New Hanover County despite having <2% organic carbon in most places (USDA-NRCS, 2007).

Pit 3 is located in the flat upland surface of the lower unit. The soil is bisequal, with thick, sandy A and E horizons over a dark Bh horizon with a clear wavy boundary and a second sequum with a sandy E horizon overlying another dark Bh horizon (Table 7, Figure 7). The pH is extremely acid (pH 3.5 to 4.4), with the most acidic areas near the top of the soil and in the Bh horizon. The soil is primarily medium and coarse sand, with a mean texture of coarse sand, with a few granules throughout. The diagnostic features of Pit 3 include an ochric epipedon and a spodic horizon. Pit 3 is classified as part of the Leon series which falls into the suborder aquod. It is classified as a Spodosol based on the presence of the spodic horizon and an aquod based on the presence of aquic soil moisture conditions. Aquic conditions are defined as a regime in which saturation, leading to oxygen depletion and chemical reduction, occur in at least one horizon within

Pit 3
Leon
Aeric Alaquod

Oi-- 3 to 0 cm; pine straw, leaves, cones, and twigs.

A-- 0 to 25 cm; gray (10YR6/1); coarse sand with few granules; loose; structureless single grained; ultra to extremely acid; clear wavy boundary.

E-- 25 to55 cm; light gray (10YR7/1); coarse sand with few granules; loose; structureless single grained; extremely acid; clear wavy boundary.

Bh-- 55 to 64 cm; black (10YR2/1); coarse sand with few granules; friable; weak medium subangular blocky structure; ultra acid; clear wavy boundary.

E'-- 64 to 112 cm; yellowish brown (10YR5/4); coarse sand with few granules; very friable; weak medium subangular blocky structure; extremely acid; clear wavy boundary.

Bh2-- 112 cm to 128 cm; dark brown (10YR3/3); coarse sand with few granules; friable; weak medium subangular blocky structure; extremely acid; clear wavy boundary.

C-- >128 cm; light yellowish brown (10YR6/4); coarse sand with few granules; very friable; weak medium subangular blocky structure; extremely acid.

Table 7. Soil description of the upper pit in the lower study unit using terminology of Schoeneberger et al. (2002).

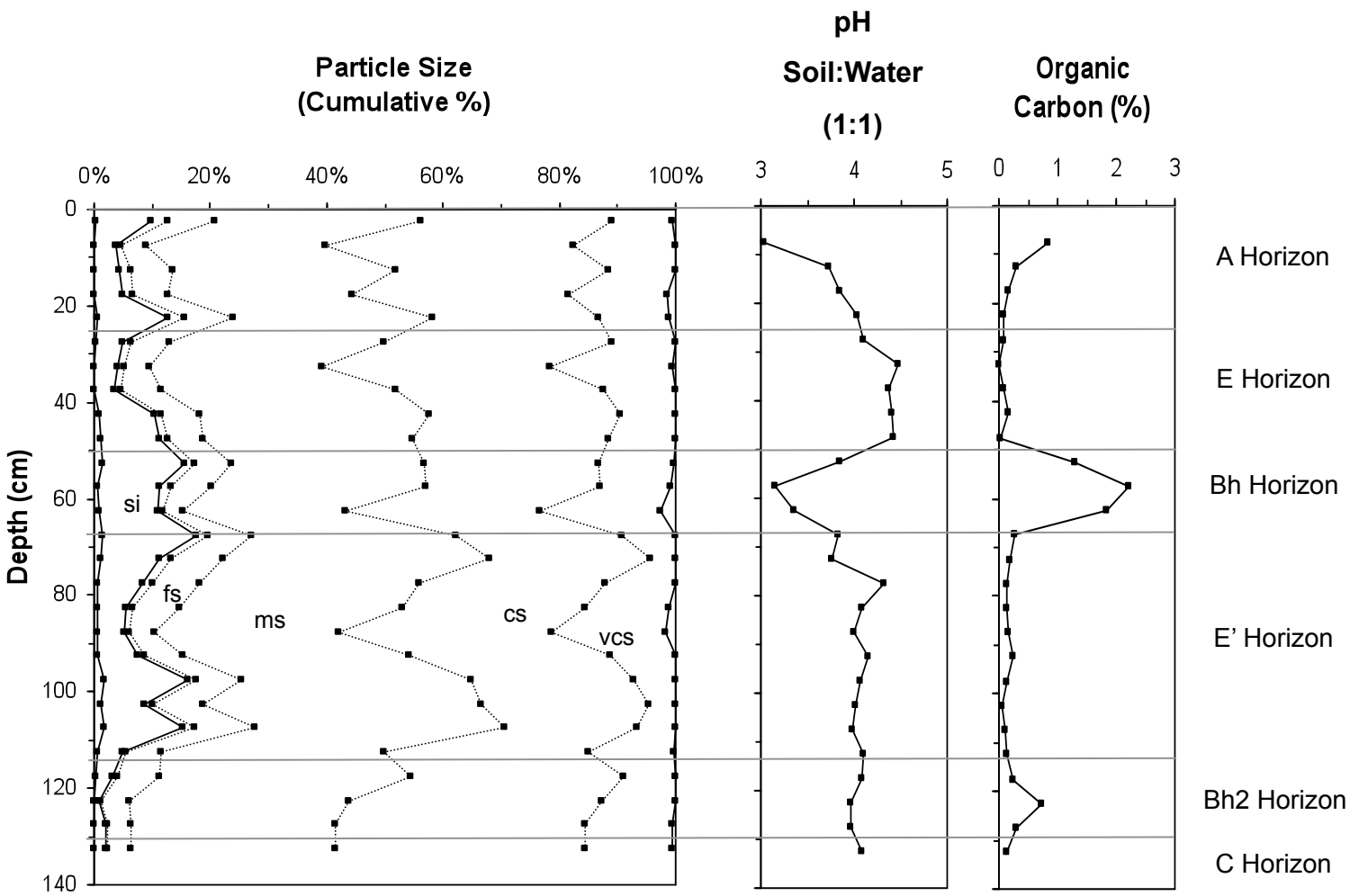

Figure 7. Soil profile data and description for Pit 3, upper soil pit at the lower study unit. Breaks between clay (c) and silt (si), silt and sand, and very coarse sand and gravel (gr) are denoted by solid lines. Dotted lines within the cumulative particle size graph denote (left to right) breaks between very fine sand (vfs), fine sand (fs), medium sand (ms), coarse sand (cs) and very coarse sand (vcs).

50 cm of the soil surface (Buol et al., 2003). Very low chromas in the E and Bh horizons of this soil pit are evidence of aquic conditions causing chemical reduction and removal of iron from the soil.

The soil pit found in the lowest elevation of this study, Pit 4, is located in the depression of the lower study unit. The soil includes a thin, sandy A horizon over two thick, dark Bh horizons, both of which have a clear wavy boundary (Table 8, Figure 8). The second Bh horizon contains wetness features in the form of a few iron oxide nodules. These cemented bodies of iron (Fe^{+3}) oxides are formed through an oxidation-reduction reaction made possible by the alternating saturated and unsaturated conditions caused by fluctuations in the water table. The pH ranges from ultra to extremely acid. The texture of this pit is much finer than the others, running from loamy coarse sand to coarse sandy loam, with a few granules throughout. The diagnostic features of Pit 4 include an umbric epipedon (a dark-colored, organic-rich surface horizon with a low base saturation) and a spodic horizon. Pit 4 is classified as part of the Murville series which falls into the suborder aquod. It is classified as a Spodosol based on the presence of a spodic horizon and an aquod based on aquic conditions as shown by the low chroma and redoximorphic features in the top 50 cm.

Pit 4
Murville
Umbric Endoaquod

Oe-- 2 to 0 cm; partially decayed moss, leaves and twigs.

A-- 0 to 12 cm; black (10YR2/1); coarse sandy loam with few granules; loose; structureless single grained; extremely acid; clear wavy boundary.

Bh-- 12 to 32 cm; very dark grayish brown (10YR3/2); loamy coarse sand with few granules; structureless single grained; ultra to extremely acid; clear wavy boundary.

Bh2-- 32 to 60 cm; yellowish brown (10YR5/4); coarse sandy loam with few granules; friable; weak medium subangular blocky structure; few dark yellowish brown (10YR4/6) iron oxide (Fe^{+3}) nodules; ultra to extremely acid; clear wavy boundary.

C-- >60cm; gray (10YR6/1); loamy coarse sand with few granules; very friable; weak medium subangular blocky structure; extremely acid.

Table 8. Soil description of the lower pit in the lower study unit using terminology of Schoeneberger et al.(2002).

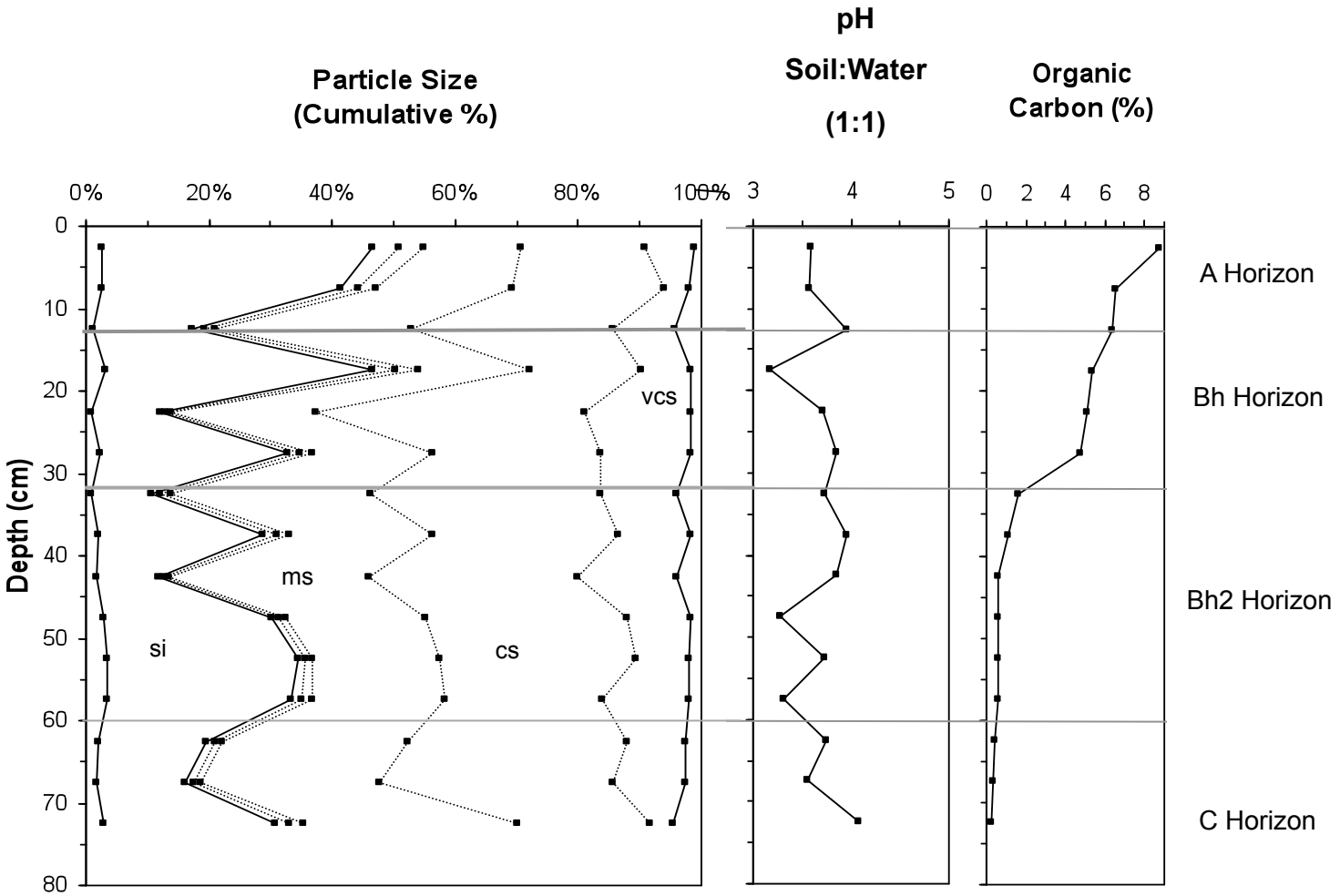

Figure 8. Soil profile data and description for Pit 4, lower soil pit at the lower study unit. Breaks between clay (c) and silt (si), silt and sand, and very coarse sand and gravel (gr) are denoted by solid lines. Dotted lines within the cumulative particle size graph denote (left to right) breaks between very fine sand (vf), fine sand (f), medium sand (m), coarse sand (cs) and very coarse sand (vc).

Water Data

Ground water data (Figures 9 and 10) were collected from piezometers adjacent to each of the soil pits in order to investigate the relationship of the soil horizons to the position of the water table. The water table is important in creating redoximorphic features in the soil, and as a control on the rate of organic matter decomposition. An interaction between soil organic matter and groundwater is also cited as one of the ways that organic carbon is sequestered to form Bh horizons.

The wells in the upper study unit show a much greater depth to water than in the lower unit. Water was never detected in the well near Pit 1. Water in the Pit 2 well was always found below the bottom of the soil pit, in the C horizon of the soil.

Water levels in Pits 3 and 4 demonstrate that the water table was at the same elevation as the B horizons for at least part of the time during the study period. The interquartile range (25-75 percent duration) of depth-to-water for Pit 3 was 130-155 cm, and for Pit 4 55-95 cm. The bottom of the Bh horizons are near the upper part of this range, suggesting that the Bh horizons were saturated around 25% of the time. The shallow water table in the lower unit, along with the correspondence between the water table and the Bh horizon boundaries, suggest that the water table may influence the location of the Bh horizon in the lower study unit. The well data also confirm the presence of the aquic soil moisture regime in the lower study unit.

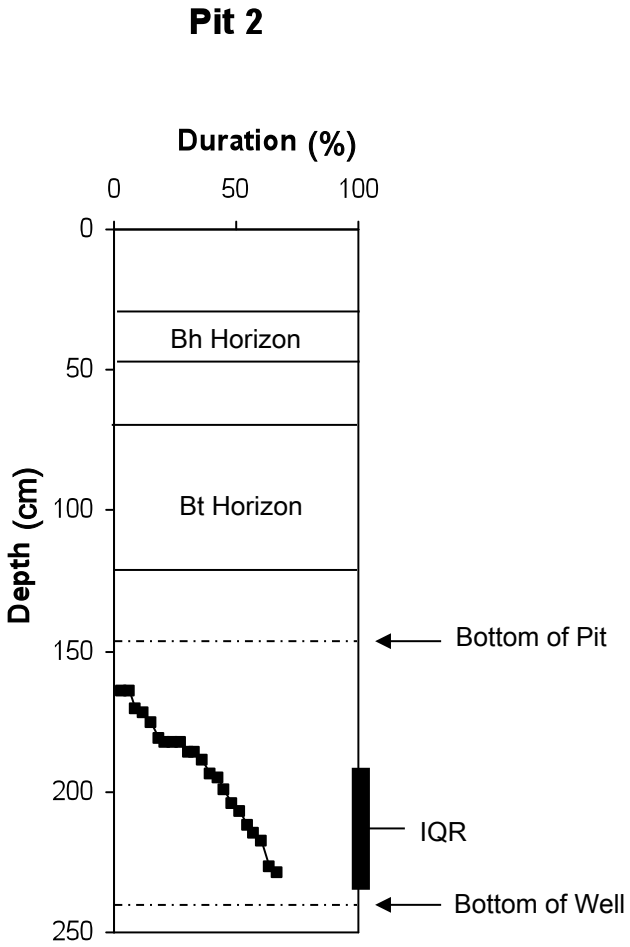

Figure 9. Water data from the monitoring well adjacent to Pit 2. Duration shows the percent of the study period that the water table was at or above his depth. The inter-quartile range (IQR) indicates the depths between 25-75% duration. The location of soil B horizons, the bottom of the soil pit, and the bottom of the monitoring well are shown.

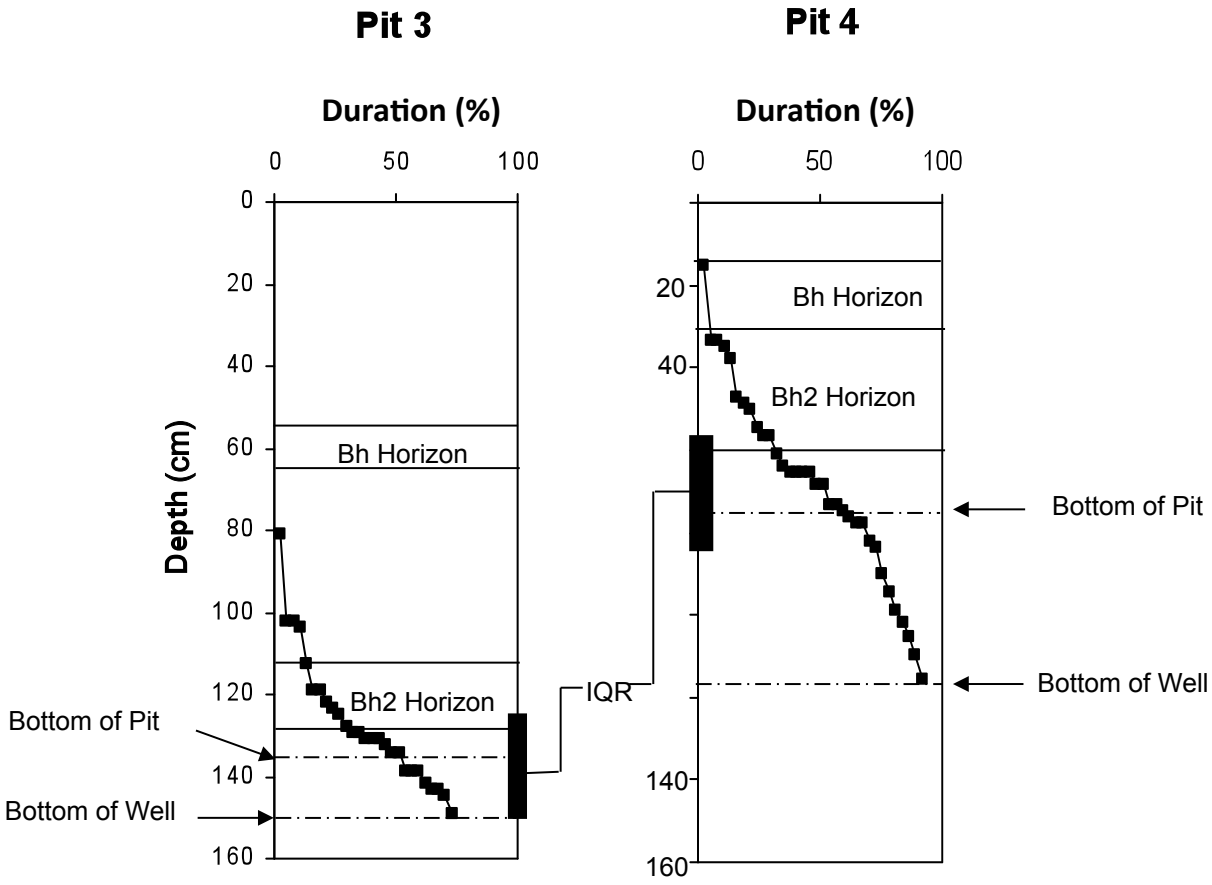

Figure 10. Water data from the monitoring wells adjacent to Pits 3 and 4. Duration shows the percent of the study period that the water table was at or above his depth. The inter-quartile range (IQR) indicates the depths between 25-75% duration. The location of soil B horizons, the bottom of the soil pit, and the bottom of the monitoring well are shown

Discussion

I. *The expression of Bh horizons corresponds with their topographic position.*

This study shows that the expression of Bh horizons is closely related to topography. Point sampling shows that the upper study unit contains thin, discontinuous, or nonexistent Bh horizons. This is due to more rapid drainage and greater depth to water in the upper unit. The piezometer data show that the soils of the upper unit are well above the elevation of the water table. These dry conditions reduce the likelihood that organic matter will precipitate to form a Bh horizon. The little organic matter that is deposited in the Bh horizon of the upper unit may not persist, because it is more vulnerable to decomposition in the oxidizing environment above the water table. The link between elevation and Bh horizons is further illustrated in that the higher surfaces in each study unit have areas where Bh horizons are not present, and the horizons that do exist have weaker expressions. In higher topographic positions throughout the study area, the combination of increased leaching, decreased sequestration, and increased decomposition result in weaker development of Bh horizons.

Bh horizons in the lower study unit are thicker, darker, and contain more organic matter than those in the upper unit, reflecting wetter soil conditions. The piezometer data and the presence of redoximorphic features in Pit 4 show that Bh horizons of the lower unit coincide with the water table for at least some time of the year. The high water table encourages organic matter to precipitate into the Bh horizon by chemical interaction with groundwater, as described by Daniels et al. (1976). The wetter conditions also retard decomposition, leading to thicker and darker Bh horizons in the lower unit.

II. *The water table appears to influence the location and expression of the Bh horizon in the lower unit.*

Soils in the upper unit were located above the water table during the entire study period, but the lower unit soils appear to be influenced by the position of the water table. Piezometer data show that the lower boundaries of the Bh horizons in the lower unit were saturated roughly 25% of the time during the study period. The model of organic carbon in soils (Figure 1) suggests that Bh horizons may be influenced by the water table in two ways. First, the water table creates an environment in which translocating organic acids can precipitate onto sand grains, or organic colloids can flocculate to fill pore space and form Bh horizons. Second, saturated conditions below the water table help to retard the decay of organic matter. If organic carbon inputs by littering, humification, and translocation are roughly the same throughout both study units, then the rate of decomposition in the subsurface may be the limiting factor that controls the location and thickness of Bh horizons. These factors lead to thicker horizons, with darker colors and greater organic carbon content in the lower study unit.

III. *Soil texture appears to influence the location and expression of Bh horizons in the upper unit.*

Previous studies in Florida (Carlisle and Schoon, 1969) have suggested that sedimentological features in the form of lenses of very fine sand or mud in the subsurface help to trap organic matter in Bh horizons. The smaller pore spaces in the fine-grained layers may trap organic colloids, or may slow the leaching of water so that the organic

matter has more time to precipitate. This more efficient trapping mechanism results in Bh horizons that are positioned directly above the finer-textured horizon.

In this study, fine-textured Bt horizons were found under the Bh horizons in soil Pits 1 and 2. These Bt horizons are pedogenic rather than sedimentary features. Fine-grained lenses with up to 40% mud are also found throughout the soil pit profiles, especially in the lower study unit. However, the Bh horizons in these cases are not found directly above the finer-textured layers and no clear relationship exists between texture and organic carbon in any of the soil pits. In the upper unit Bh horizons are found 20-60 cm above the Bt horizons, while in the lower unit thin fine lenses are found above, below, and within the Bh horizons. Thus it does not appear that the finer layers are responsible for direct trapping of organic particles. Rather, the finer-grained horizons may have aided in the development of Bh horizons indirectly by slowing the subsurface drainage of water. The fine-grained sediments and Bt horizons possess lower hydraulic conductivity than the coarse sands above and below them, allowing them to act as an aquitard during rainfall events. As a result, a saturated zone can form periodically in the sands above the fine lenses, allowing translocating organic matter to precipitate and form a Bh horizon. This process also inhibits decomposition in the periodically saturated layer, creating conditions in which organic carbon may persist in the soil.

IV. *There is a correlation between surface leaf litter and subsurface organic carbon in the upper study unit.*

It was hypothesized that more surface leaf litter would result in more organic matter available for leaching into the subsurface. Since the climate and parent material

are similar throughout the study area, the rate of humification in the O horizon and percolation into the soil should be roughly equal as well. If the supply of organic carbon to the subsurface is a limiting factor, then greater surface litter should result in thicker, darker, and more organic-rich Bh horizons.

Generally, there is more leaf litter in the upper study unit than in the lower unit. This may reflect the slightly denser canopy cover. It may also reflect more rapid humification of leaf litter in the lower study unit. Occasional surface ponding, alternating with dry periods, may favor rapid oxidation of organic matter in the lower study unit. The dry surface conditions of the upper study unit, in contrast, would lead to slower humification and decomposition of organic litter. This is supported by the partially decomposed (hemic) state of some O horizons in the lower unit (Pit 4), compared to the slightly decomposed (fibric) state of O horizons in the upper unit (Pits 1 and 2).

There is an overall positive correlation between surface litter and organic carbon in the Bh horizon in the upper unit. The correlation between these variables was even more closely linked in the Spodosol subset, suggesting that surface litter may be a limiting factor in the development of spodic horizons the upper unit. It is difficult, however, to separate the role of surface litter from that of topography. The locations with the most organic litter in the upper unit are also at the lowest elevations, where the depth to a saturated layer is low and conditions are favorable for trapping and preserving organic carbon in the subsurface.

Conclusions

In this study, the relative importance of surface topography, particle size, water table elevation, and surface litter were tested for their ability to explain the occurrence and properties of Bh horizons. Two different mechanisms control how Bh horizons form in the two study units, largely based on texture and the depth to water table.

In the lower unit, Bh horizons have stronger expression and coincide roughly with the water table during wet periods. The shallow water table results in shallower and more strongly developed Bh horizons in the lower unit, because groundwater interacts with organic carbon translocating through the soil to facilitate precipitation or flocculation. The wetter conditions also lower the rate of decomposition, allowing the Bh horizon to persist and resulting in darker and thicker organic horizons.

The higher elevation in the upper unit results in a greater depth to the water table, resulting in B horizons that are dry except during rainy periods. In some cases, finer-textured Bt horizons in the upper unit create perched saturated layers that allow Bh horizons to form. These saturated layers are ephemeral, allowing for more rapid organic matter decomposition and weaker Bh horizons than those found in the lower unit. Elsewhere in the upper unit, rapid decomposition and/or rapid leaching remove organic carbon faster than it can accumulate and continuous Bh horizons do not occur. These locations are occupied by Ultisols (where illuvial silt and clay have accumulated in a Bt horizon) or Entisols (no B horizon).

The role of other factors such as surface litter and sedimentology in controlling Bh horizons remains unclear. A correlation exists between surface leaf litter and subsurface organic carbon in the upper study. However, Bh horizons are generally more

sporadic and have a weaker expression in the upper unit. While an increase in surface litter may lead to an increase in organic matter supplied to the subsurface, the drier conditions in the upper unit seem to favor more rapid decomposition which limits the formation of Bh horizons. Lenses of finer-grained sediment with 20-40% silt exist in the subsurface of the lower study unit, but the soil pit descriptions show no direct relationship between these fine lenses and the upper or lower boundaries of Bh horizons. These fine layers probably play a role in forming Bh horizons by slowing water movement through the soil, but they are not acting directly to trap humus particles.

Due to the complexity and large number of variables working in the subsurface horizons of the study area, many questions regarding these soils remain unanswered. More study is needed to better understand the genesis and distribution of humus-rich B horizons in the Atlantic Coastal Plain.

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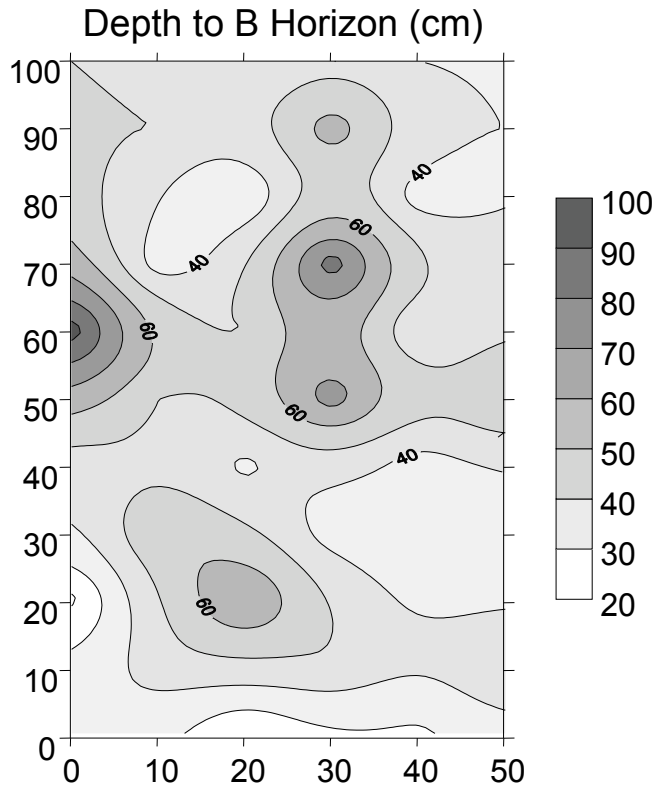
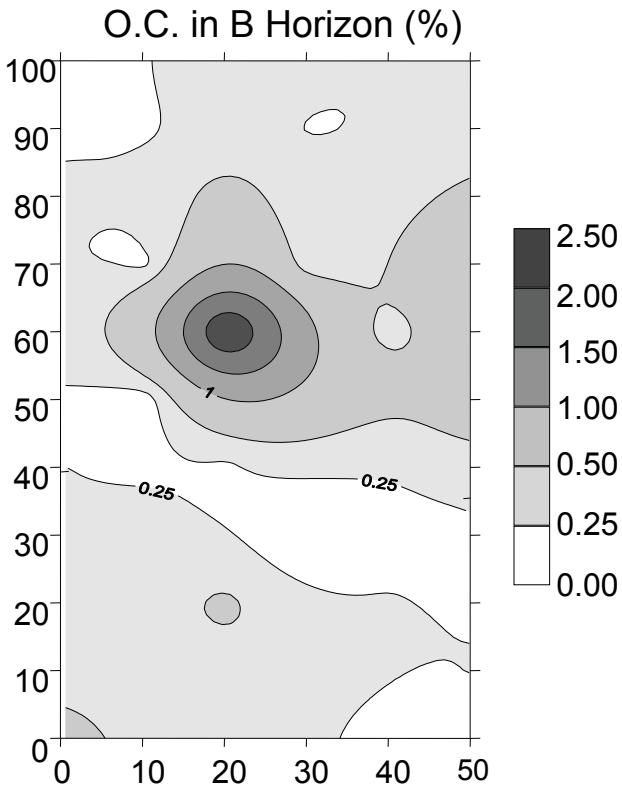
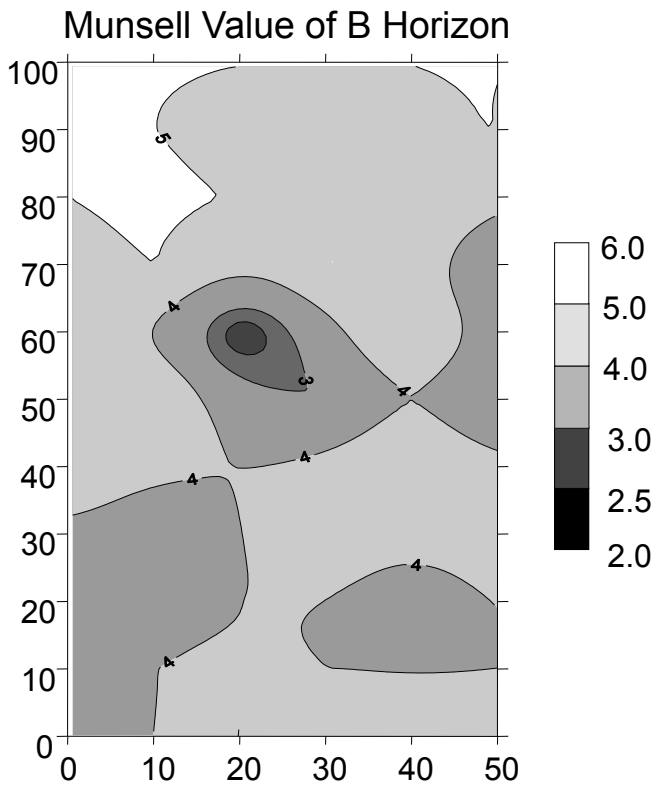
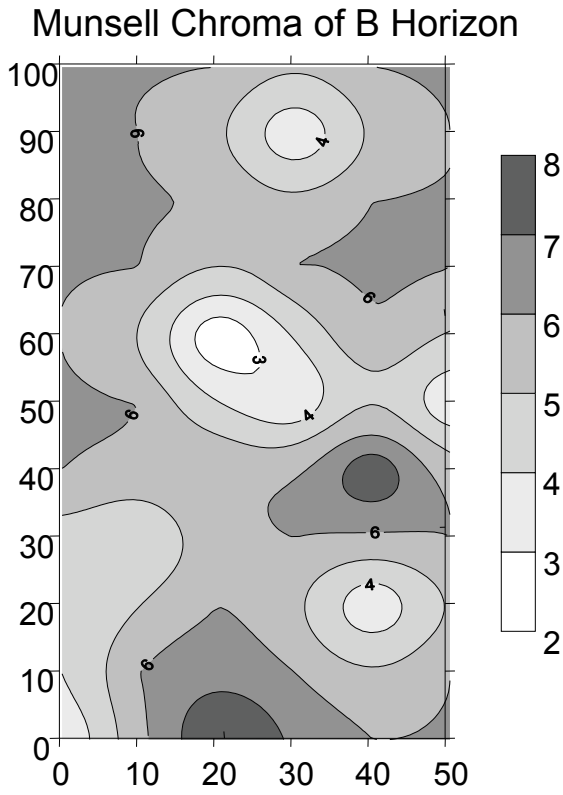
APPENDIX 1

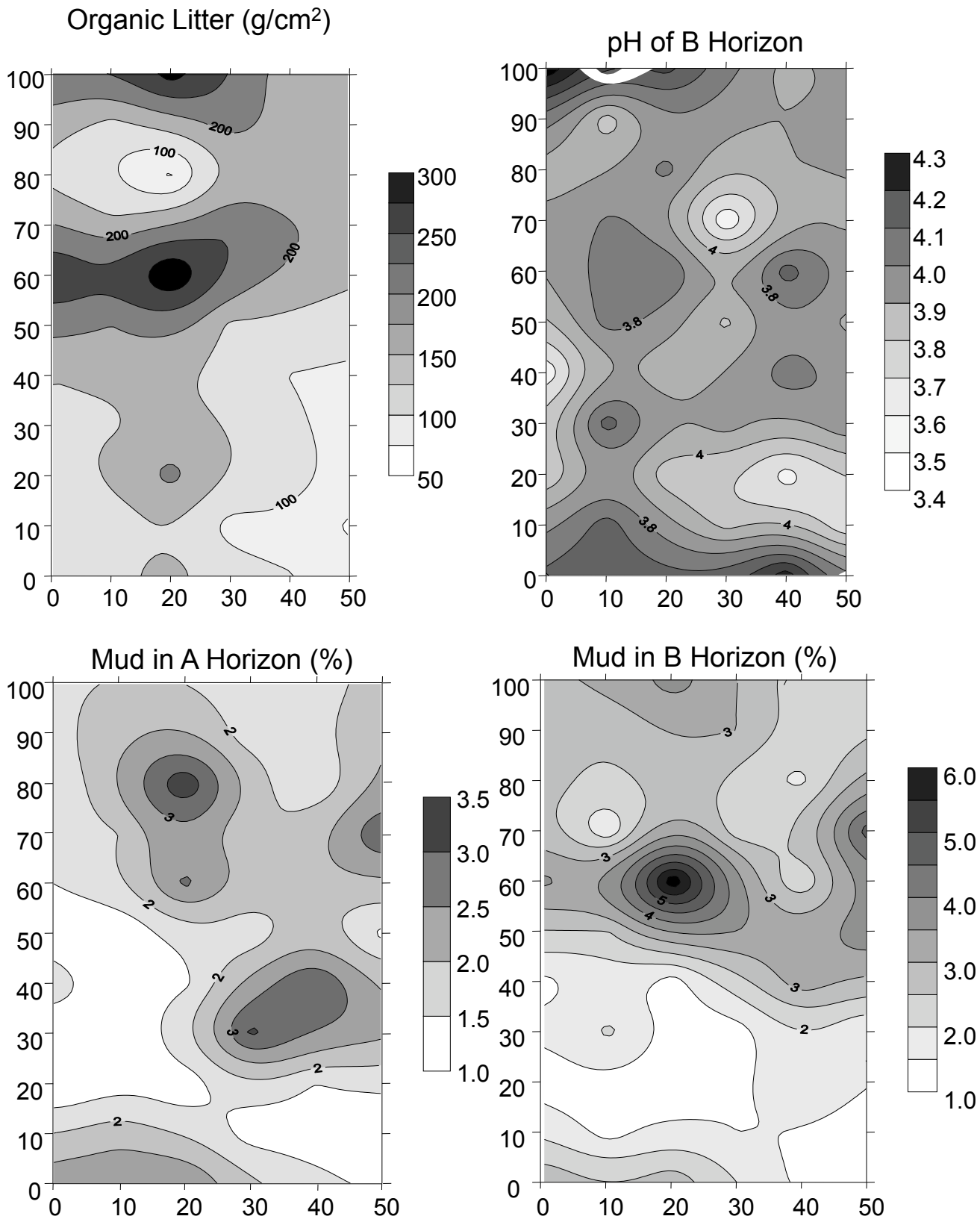






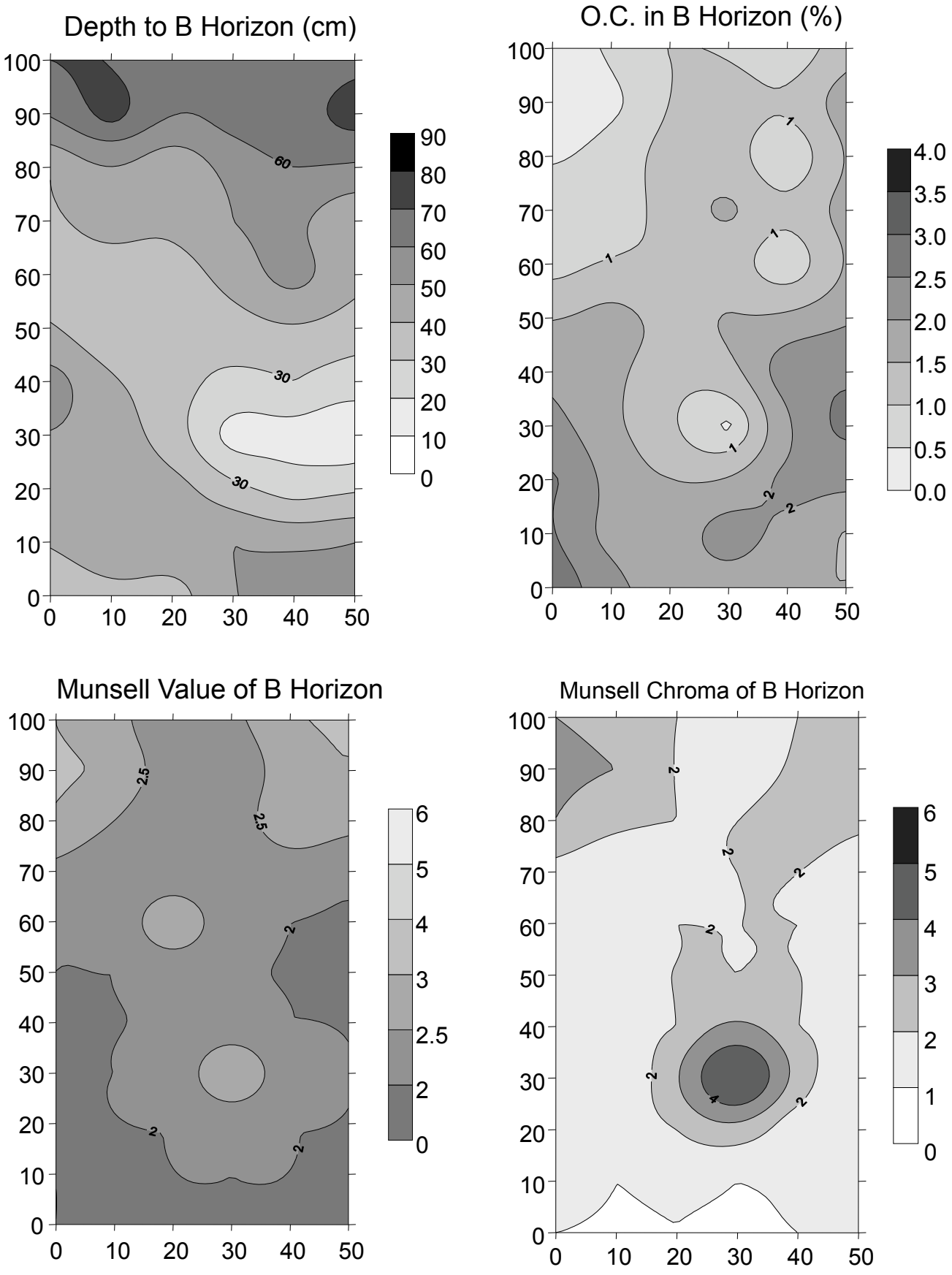


Appendix 1: Mapped variables of the upper unit

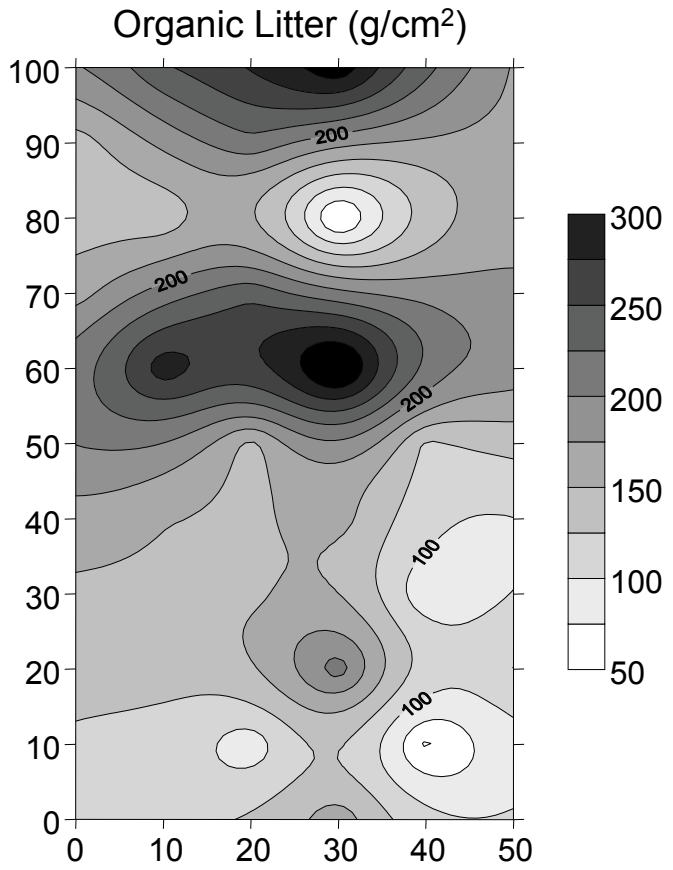


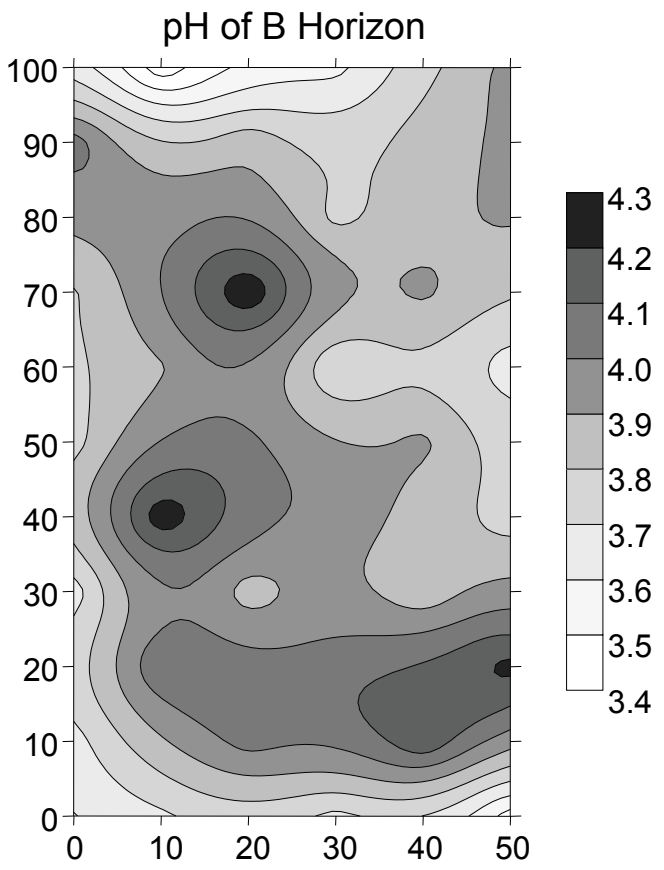
Appendix 1: cont

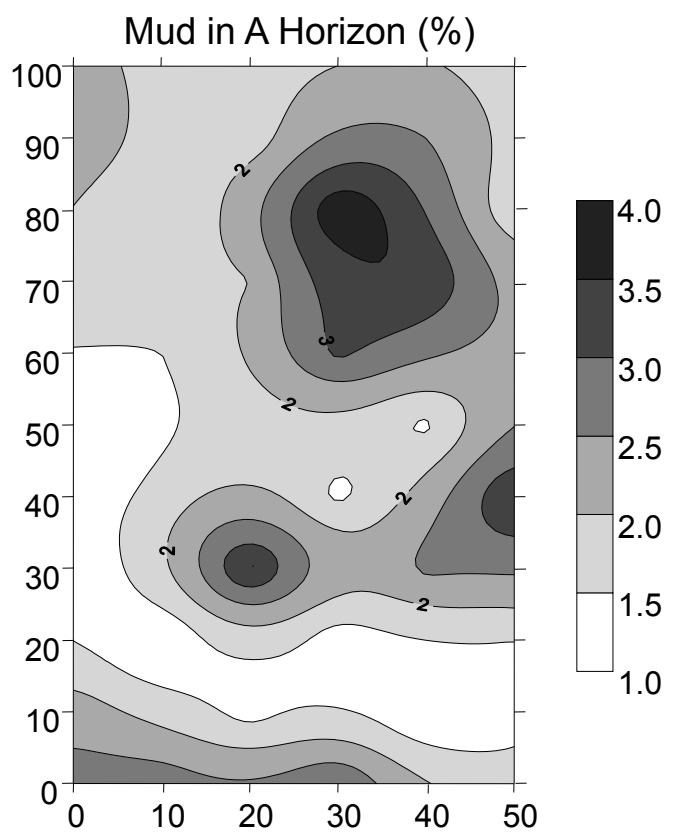
APPENDIX 2

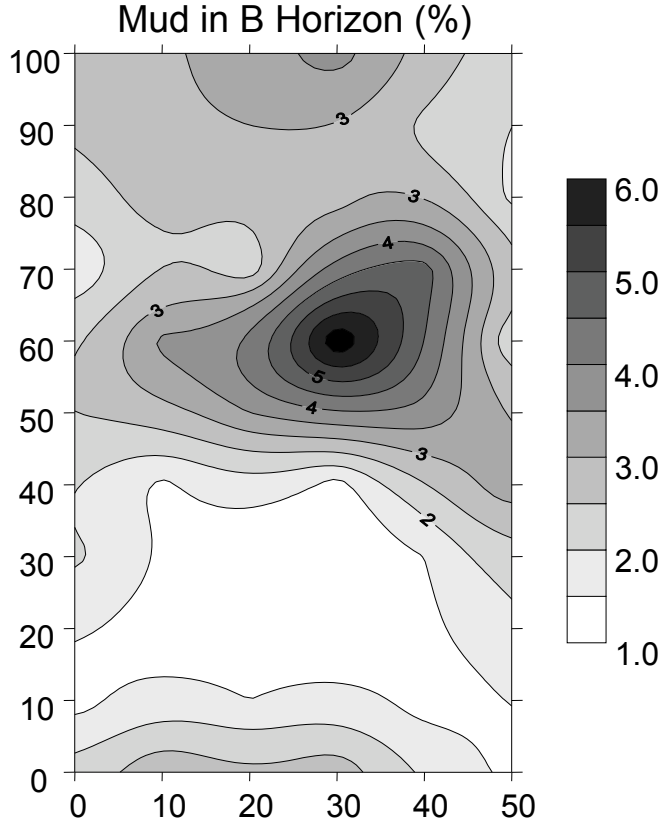


Appendix 2: Mapped variables of the lower unit.









Appendix 2: cont.

APPENDIX 3

SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 2.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

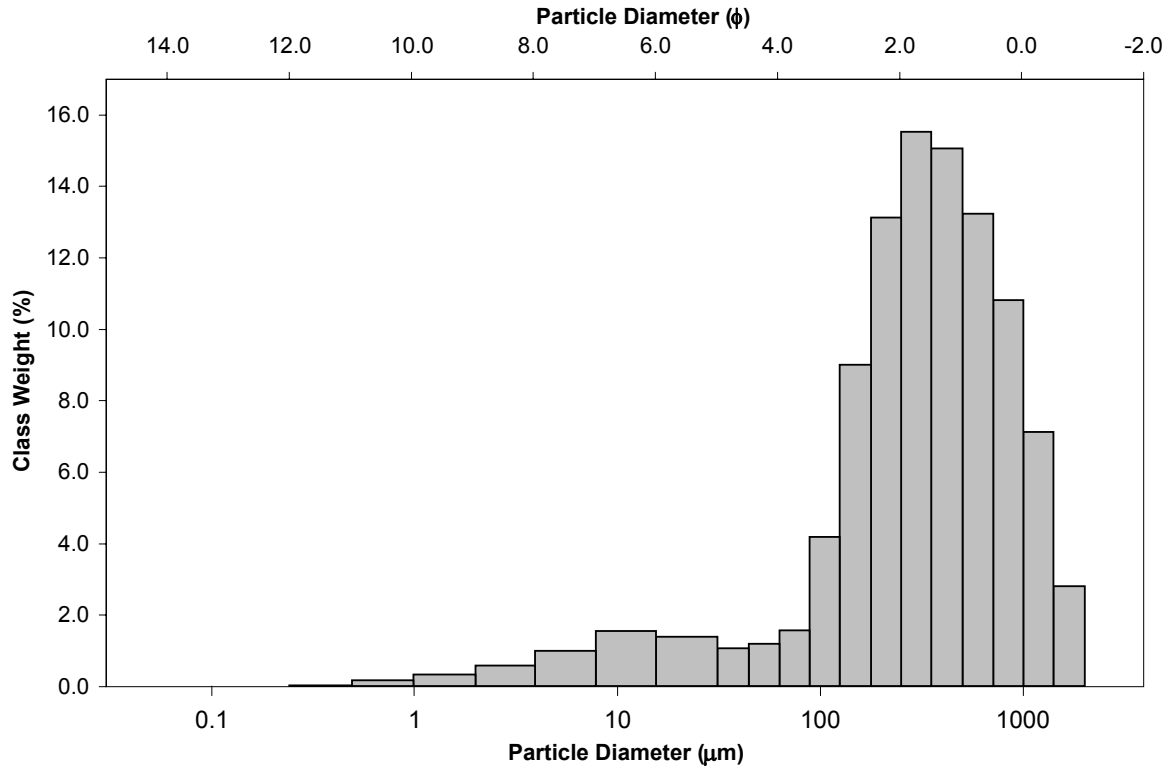
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	36.07	0.026
MEDIAN or D_{50}:	328.1	1.608
D_{90}:	981.9	4.793
(D_{90} / D_{10}):	27.22	181.6
(D_{90} - D_{10}):	945.8	4.766
(D_{75} / D_{25}):	3.589	3.613
(D_{75} - D_{25}):	442.3	1.844

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	23.0%
SAND:	88.3%	MEDIUM SAND:	29.2%
MUD:	11.7%	FINE SAND:	21.1%
		V FINE SAND:	5.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.6%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.0%
FINE GRAVEL:	0.0%	FINE SILT:	1.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	9.5%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	445.3	251.0	1.994	309.1	1.694	Medium Sand
SORTING (σ):	384.2	4.009	2.003	3.405	1.768	Poorly Sorted
SKEWNESS (Sk):	1.330	-1.642	1.642	-0.268	0.268	Fine Skewed
KURTOSIS (K):	4.556	6.036	6.036	1.552	1.552	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **7.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

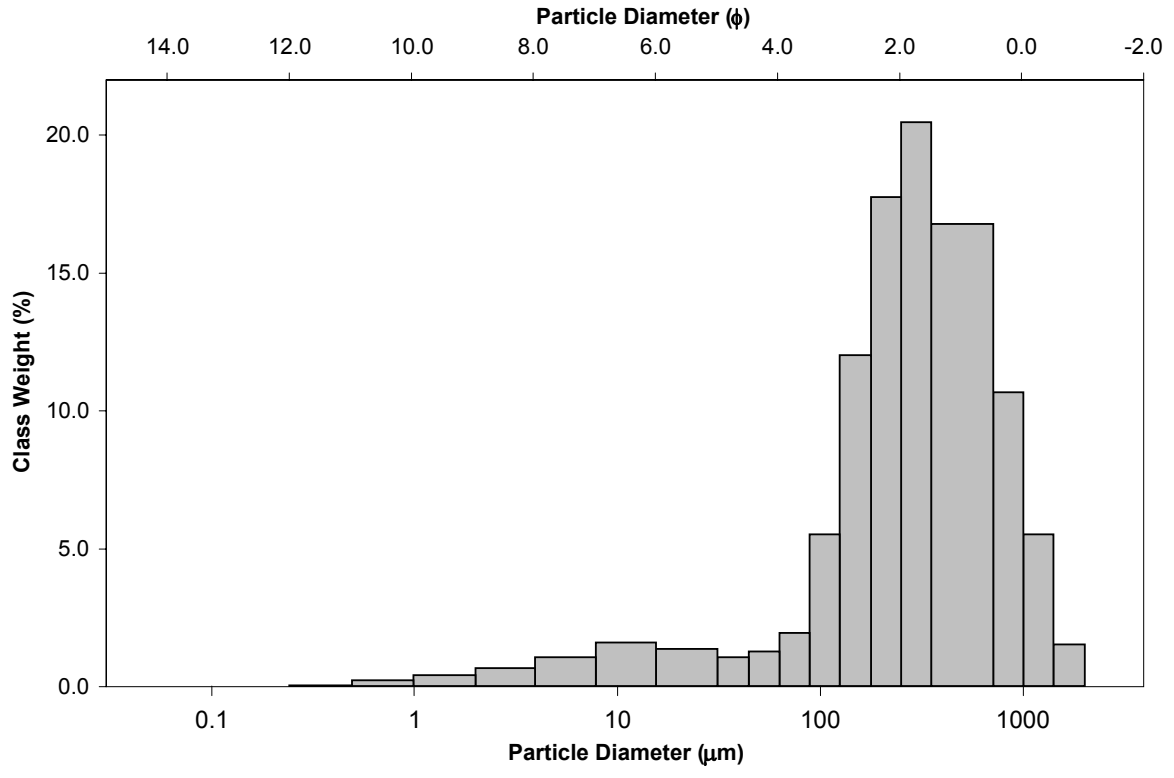
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	50.60	0.243
MEDIAN or D_{50}:	299.9	1.738
D_{90}:	845.1	4.305
(D_{90} / D_{10}):	16.70	17.73
(D_{90} - D_{10}):	794.5	4.062
(D_{75} / D_{25}):	3.258	2.939
(D_{75} - D_{25}):	376.9	1.704

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	22.6%
SAND:	89.4%	MEDIUM SAND:	30.5%
MUD:	10.6%	FINE SAND:	24.4%
		V FINE SAND:	6.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	5.8%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	401.3	236.4	2.081	288.8	1.792	Medium Sand
SORTING (σ):	327.4	3.734	1.901	3.121	1.642	Poorly Sorted
SKEWNESS (Sk):	1.410	-1.824	1.824	-0.259	0.259	Fine Skewed
KURTOSIS (K):	5.423	6.940	6.940	1.601	1.601	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 12.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

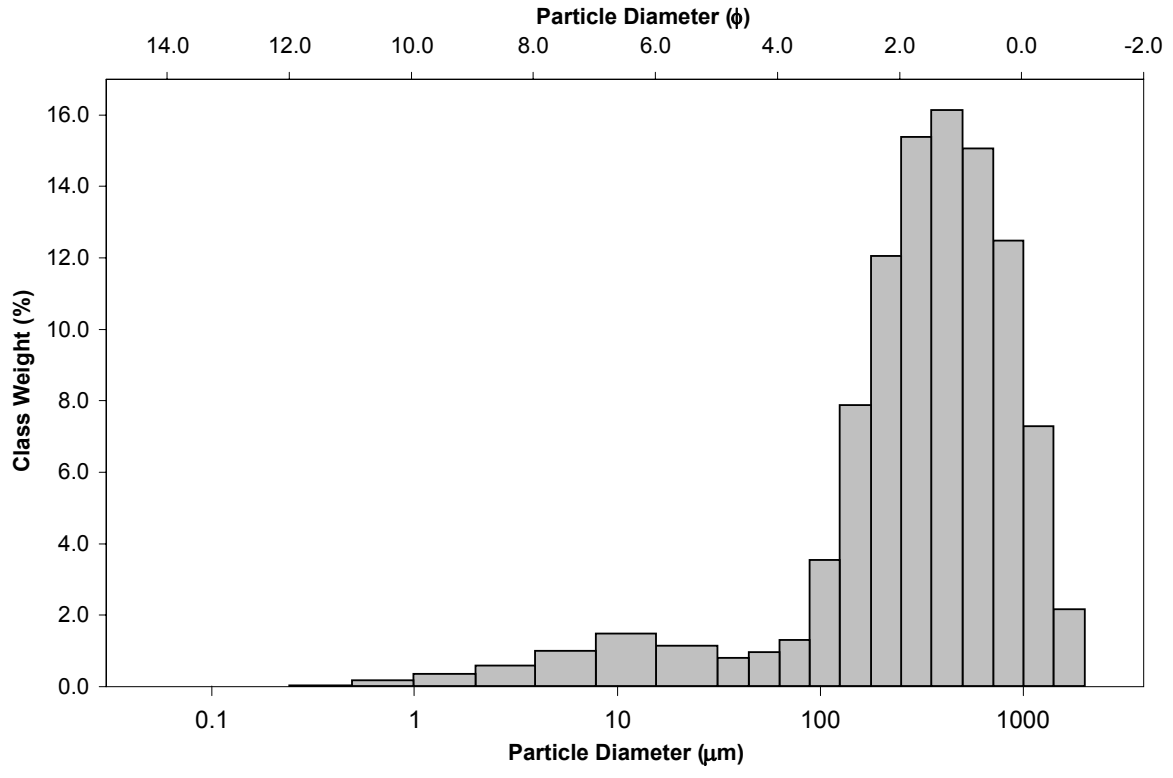
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	48.03	0.043
MEDIAN or D_{50}:	360.1	1.473
D_{90}:	970.8	4.380
(D_{90} / D_{10}):	20.21	102.3
(D_{90} - D_{10}):	922.7	4.337
(D_{75} / D_{25}):	3.406	3.761
(D_{75} - D_{25}):	453.2	1.768

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	26.4%
SAND:	89.3%	MEDIUM SAND:	30.2%
MUD:	10.7%	FINE SAND:	19.1%
		V FINE SAND:	4.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.8%
FINE GRAVEL:	0.0%	FINE SILT:	1.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	9.0%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	460.5	268.8	1.896	335.6	1.575	Medium Sand
SORTING (σ):	370.3	3.950	1.982	3.287	1.717	Poorly Sorted
SKEWNESS (Sk):	1.179	-1.808	1.808	-0.304	0.304	Very Fine Skewed
KURTOSIS (K):	4.253	6.616	6.616	1.607	1.607	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **17.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

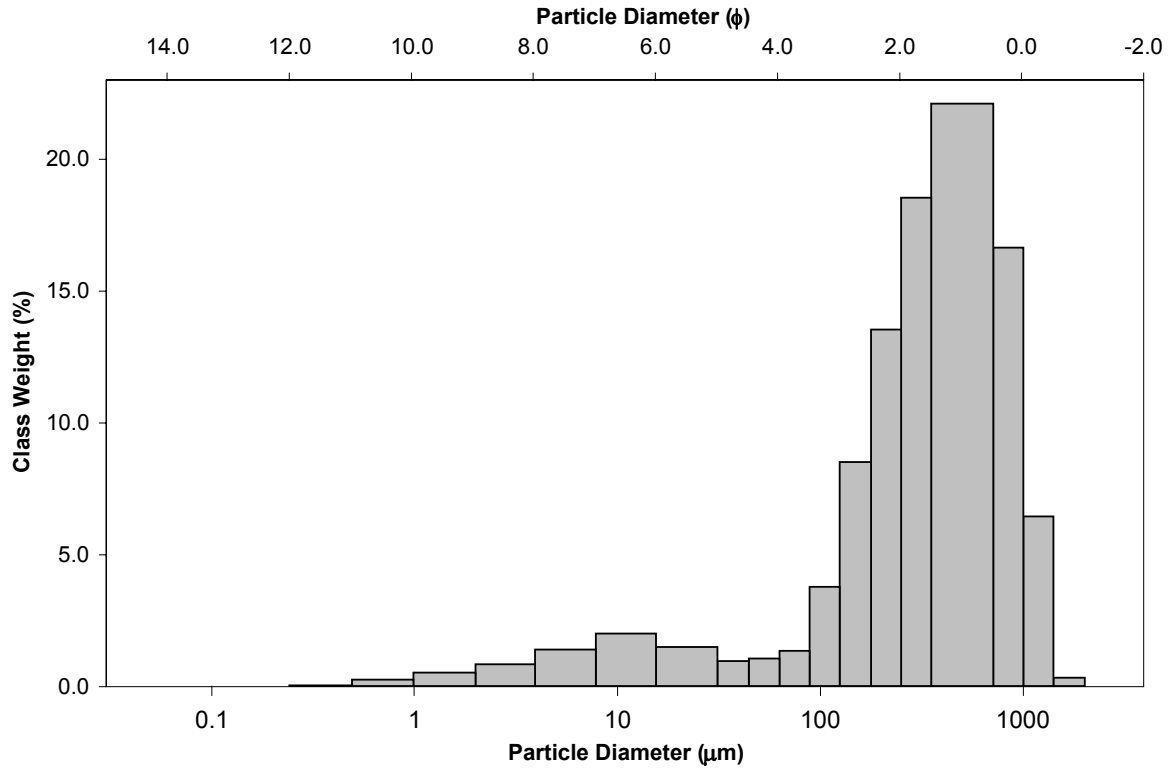
	μm	ϕ
MODE 1:	530.0	1.004
MODE 2:		
MODE 3:		
D_{10}:	30.13	0.184
MEDIAN or D_{50}:	373.1	1.423
D_{90}:	880.5	5.053
(D_{90} / D_{10}):	29.23	27.53
(D_{90} - D_{10}):	850.4	4.869
(D_{75} / D_{25}):	3.193	3.406
(D_{75} - D_{25}):	423.9	1.675

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	30.2%
SAND:	88.3%	MEDIUM SAND:	31.7%
MUD:	11.7%	FINE SAND:	17.1%
		V FINE SAND:	4.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.1%
FINE GRAVEL:	0.0%	FINE SILT:	2.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.3%
V COARSE SAND:	5.2%	CLAY:	1.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	440.3	256.3	1.964	328.8	1.605	Medium Sand
SORTING (σ):	312.5	4.087	2.031	3.225	1.689	Poorly Sorted
SKEWNESS (Sk):	0.757	-1.945	1.945	-0.398	0.398	Very Fine Skewed
KURTOSIS (K):	3.427	6.724	6.724	1.694	1.694	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 22.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

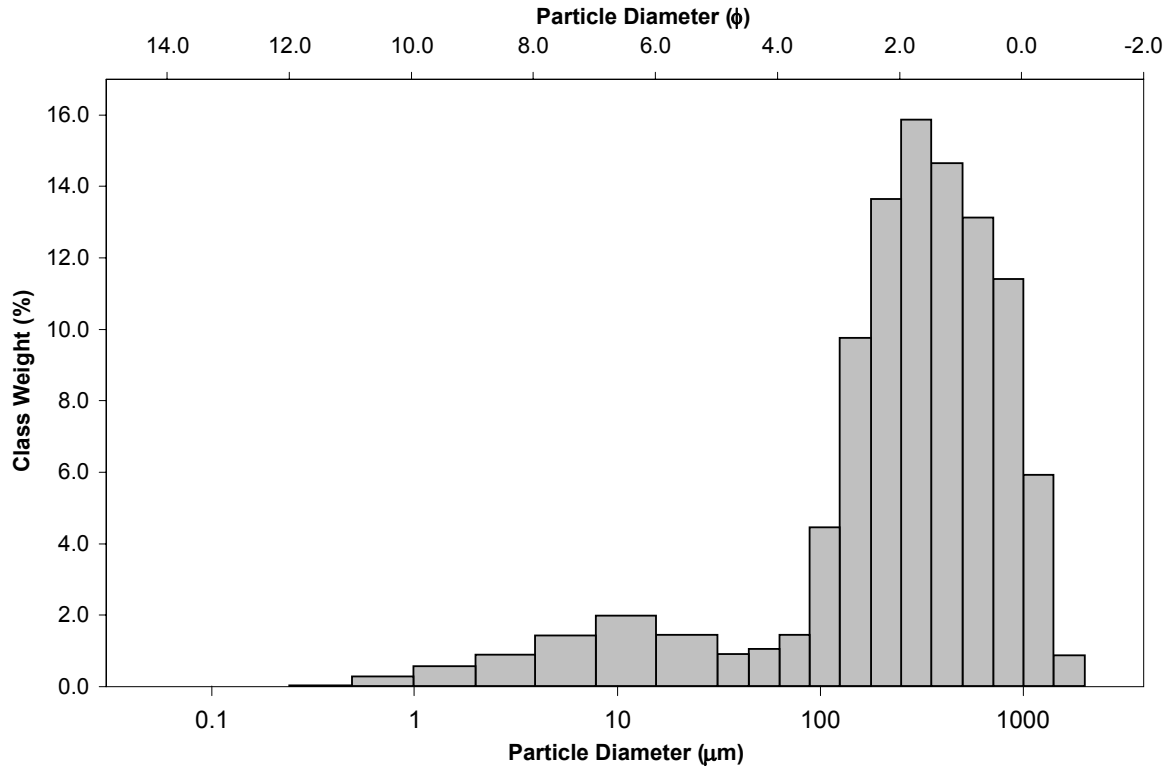
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	16.85	0.170
MEDIAN or D_{50}:	302.1	1.727
D_{90}:	889.0	5.891
(D_{90} / D_{10}):	52.77	34.71
(D_{90} - D_{10}):	872.2	5.722
(D_{75} / D_{25}):	3.730	3.317
(D_{75} - D_{25}):	414.7	1.899

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	23.1%
SAND:	85.7%	MEDIUM SAND:	28.7%
MUD:	14.3%	FINE SAND:	22.0%
		V FINE SAND:	5.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.7%
FINE GRAVEL:	0.0%	FINE SILT:	2.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.7%
V COARSE SAND:	6.4%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	399.8	211.7	2.240	272.1	1.878	Medium Sand
SORTING (σ):	339.2	4.563	2.190	3.697	1.886	Poorly Sorted
SKEWNESS (Sk):	1.187	-1.624	1.624	-0.328	0.328	Very Fine Skewed
KURTOSIS (K):	4.247	5.426	5.426	1.616	1.616	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **27.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Fine Sand

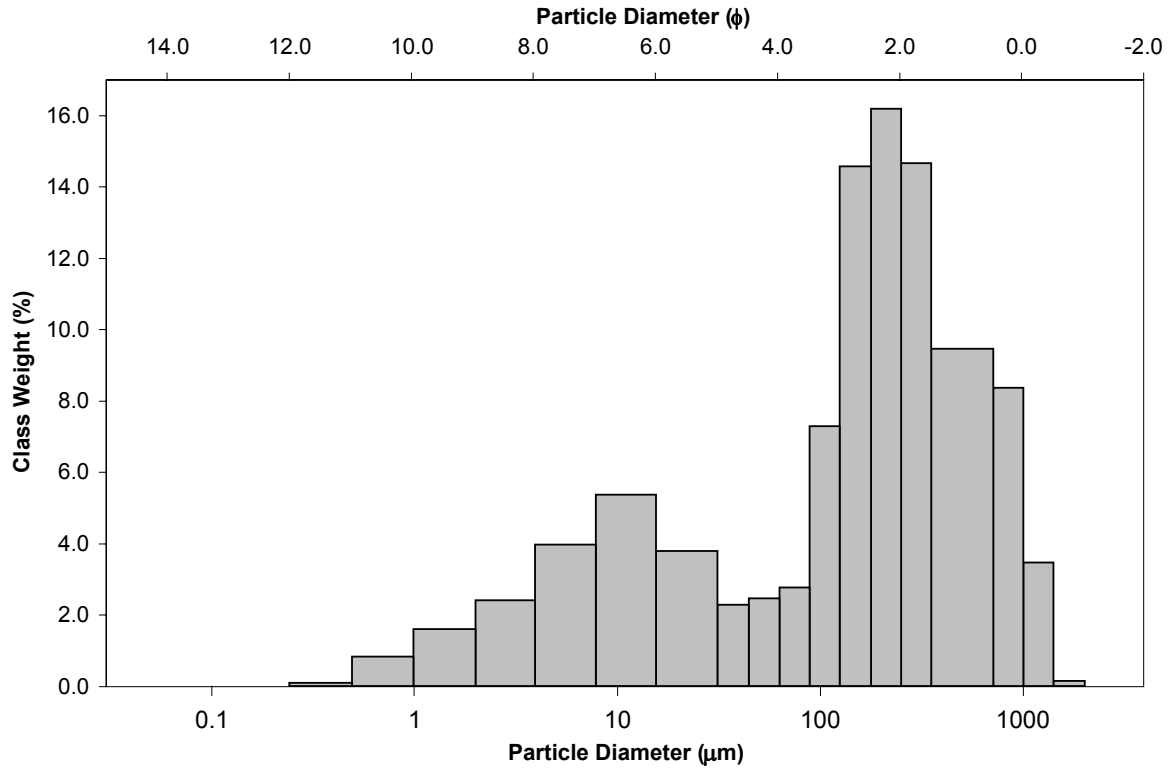
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:	11.70	6.502
MODE 3:		
D_{10}:	5.020	0.539
MEDIAN or D_{50}:	168.7	2.567
D_{90}:	688.1	7.638
(D_{90} / D_{10}):	137.1	14.17
(D_{90} - D_{10}):	683.1	7.099
(D_{75} / D_{25}):	16.43	3.630
(D_{75} - D_{25}):	324.0	4.038

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	14.0%
SAND:	67.9%	MEDIUM SAND:	18.9%
MUD:	32.1%	FINE SAND:	24.2%
		V FINE SAND:	7.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	5.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	8.5%
FINE GRAVEL:	0.0%	FINE SILT:	6.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.8%
V COARSE SAND:	2.8%	CLAY:	4.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	261.2	91.16	3.456	93.18	3.424	Very Fine Sand
SORTING (σ):	289.8	6.470	2.694	6.730	2.751	Very Poorly Sorted
SKEWNESS (Sk):	1.532	-0.823	0.823	-0.440	0.440	Very Fine Skewed
KURTOSIS (K):	5.169	2.656	2.656	0.868	0.868	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 32.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

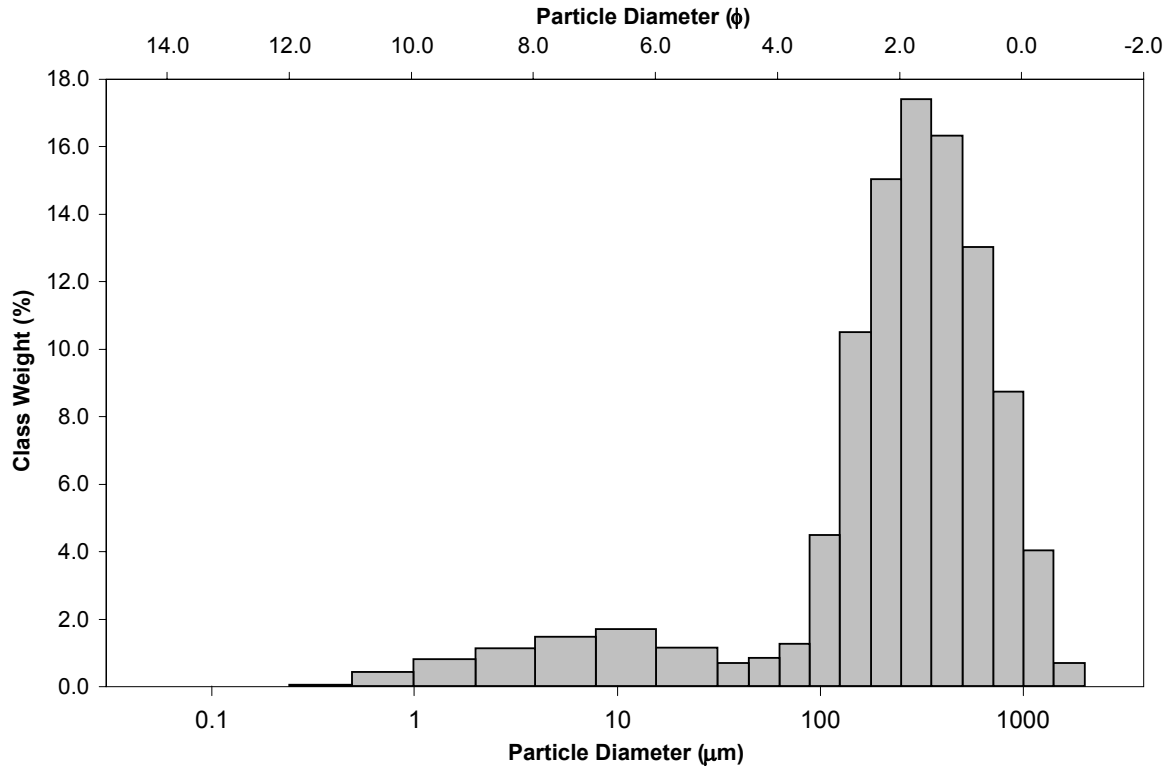
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	14.38	0.340
MEDIAN or D_{50}:	287.6	1.798
D_{90}:	790.0	6.120
(D_{90} / D_{10}):	54.93	18.00
(D_{90} - D_{10}):	775.6	5.780
(D_{75} / D_{25}):	3.279	2.709
(D_{75} - D_{25}):	347.0	1.713

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.5%
SAND:	86.0%	MEDIUM SAND:	31.7%
MUD:	14.0%	FINE SAND:	24.0%
		V FINE SAND:	5.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.2%
FINE GRAVEL:	0.0%	FINE SILT:	2.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.1%
V COARSE SAND:	4.4%	CLAY:	2.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	367.9	195.6	2.354	259.7	1.945	Medium Sand
SORTING (σ):	308.2	4.719	2.239	3.650	1.868	Poorly Sorted
SKEWNESS (Sk):	1.357	-1.754	1.754	-0.353	0.353	Very Fine Skewed
KURTOSIS (K):	5.210	5.779	5.779	1.857	1.857	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 37.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Fine Sand

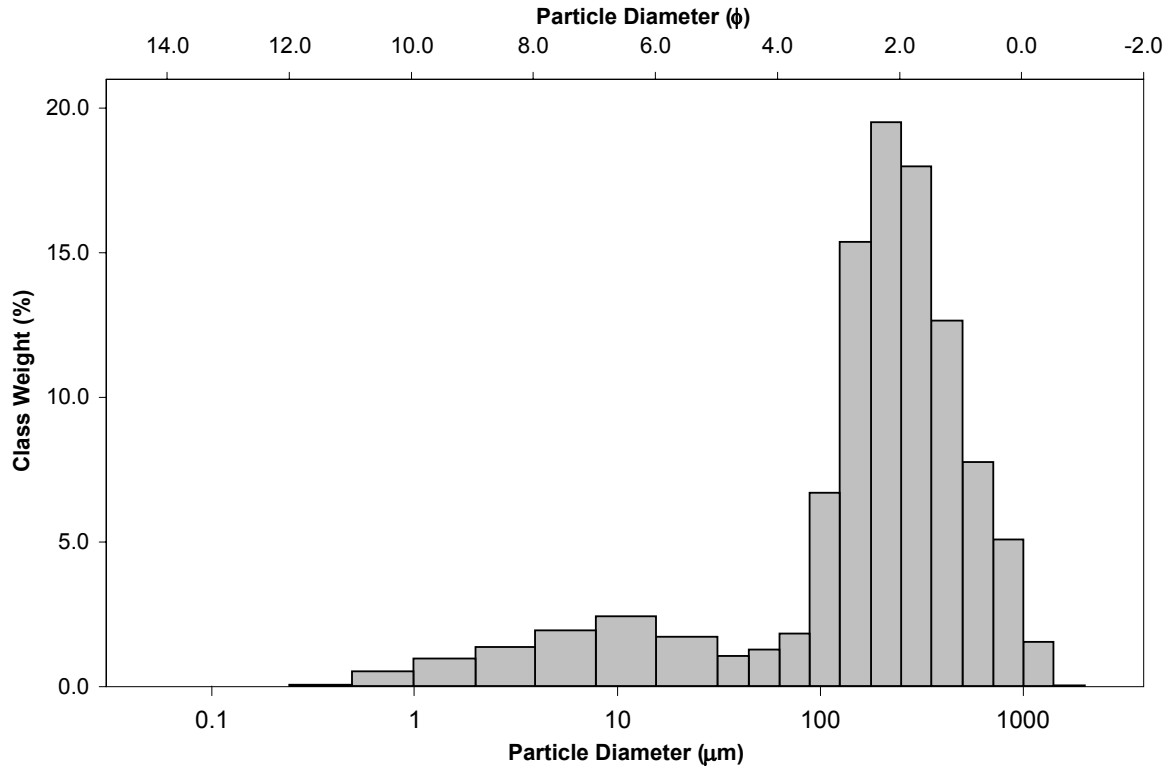
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	9.311	0.770
MEDIAN or D_{50}:	211.7	2.240
D_{90}:	586.3	6.747
(D_{90} / D_{10}):	62.97	8.758
(D_{90} - D_{10}):	576.9	5.976
(D_{75} / D_{25}):	3.074	2.078
(D_{75} - D_{25}):	238.1	1.620

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	11.9%
SAND:	81.4%	MEDIUM SAND:	28.1%
MUD:	18.6%	FINE SAND:	32.1%
		V FINE SAND:	7.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	4.5%
FINE GRAVEL:	0.0%	FINE SILT:	3.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.5%
V COARSE SAND:	1.4%	CLAY:	2.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	270.0	136.8	2.870	140.1	2.835	Fine Sand
SORTING (σ):	238.4	4.858	2.280	4.530	2.179	Very Poorly Sorted
SKEWNESS (Sk):	1.529	-1.520	1.520	-0.481	0.481	Very Fine Skewed
KURTOSIS (K):	5.861	4.746	4.746	1.956	1.956	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 42.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

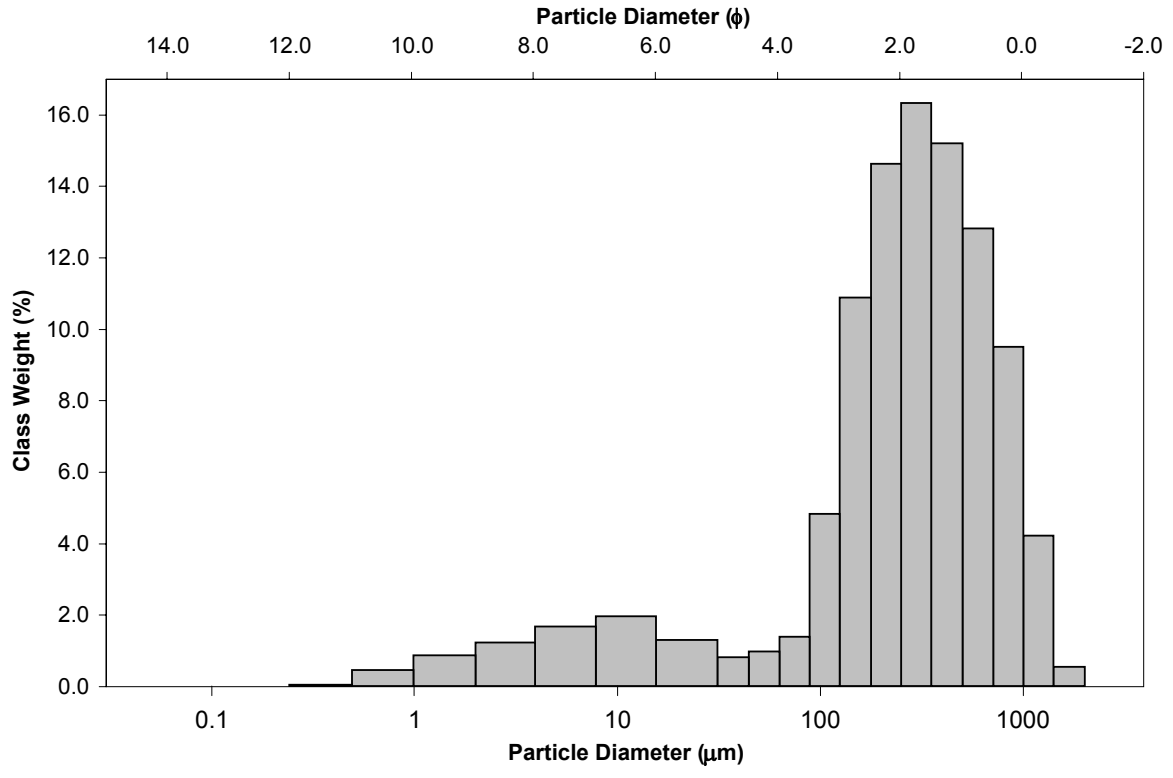
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	11.55	0.314
MEDIAN or D_{50}:	278.1	1.847
D_{90}:	804.2	6.436
(D_{90} / D_{10}):	69.64	20.48
(D_{90} - D_{10}):	792.7	6.122
(D_{75} / D_{25}):	3.583	2.863
(D_{75} - D_{25}):	363.4	1.841

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.9%
SAND:	84.3%	MEDIUM SAND:	29.4%
MUD:	15.7%	FINE SAND:	23.8%
		V FINE SAND:	5.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.7%
FINE GRAVEL:	0.0%	FINE SILT:	3.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.3%
V COARSE SAND:	4.4%	CLAY:	2.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	362.8	183.2	2.449	231.2	2.113	Fine Sand
SORTING (σ):	312.1	5.001	2.322	4.041	2.015	Very Poorly Sorted
SKEWNESS (Sk):	1.278	-1.616	1.616	-0.393	0.393	Very Fine Skewed
KURTOSIS (K):	4.744	5.144	5.144	1.760	1.760	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 47.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Fine Sand

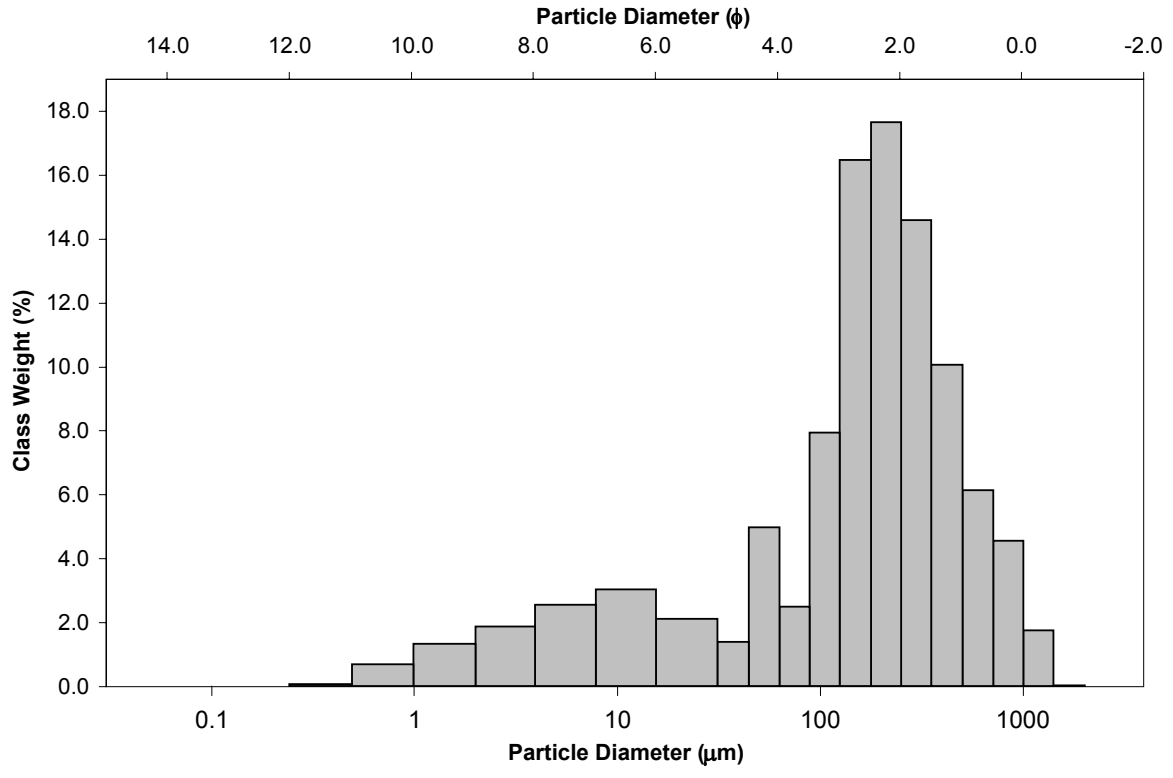
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:	53.25	4.253
MODE 3:	11.70	6.502
D_{10}:	6.097	0.890
MEDIAN or D_{50}:	173.2	2.530
D_{90}:	539.6	7.358
(D_{90} / D_{10}):	88.50	8.266
(D_{90} - D_{10}):	533.5	6.468
(D_{75} / D_{25}):	5.647	2.482
(D_{75} - D_{25}):	255.9	2.498

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	9.6%
SAND:	73.4%	MEDIUM SAND:	22.0%
MUD:	26.6%	FINE SAND:	30.7%
		V FINE SAND:	9.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	5.5%
FINE GRAVEL:	0.0%	FINE SILT:	4.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.3%
V COARSE SAND:	1.6%	CLAY:	3.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	235.7	103.0	3.280	99.30	3.332	Very Fine Sand
SORTING (σ):	240.6	5.466	2.450	5.562	2.476	Very Poorly Sorted
SKEWNESS (Sk):	1.797	-1.179	1.179	-0.486	0.486	Very Fine Skewed
KURTOSIS (K):	6.817	3.637	3.637	1.344	1.344	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 52.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

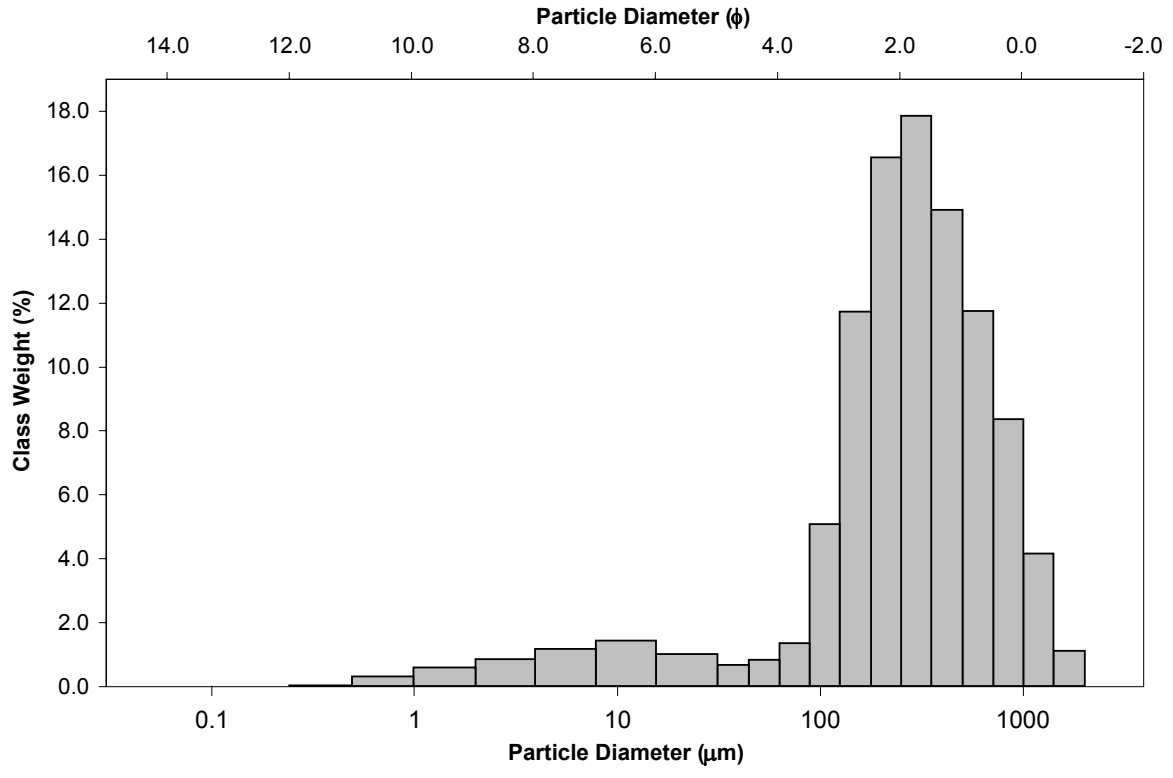
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	28.82	0.314
MEDIAN or D_{50}:	278.5	1.844
D_{90}:	804.3	5.117
(D_{90} / D_{10}):	27.91	16.28
(D_{90} - D_{10}):	775.5	4.803
(D_{75} / D_{25}):	3.135	2.602
(D_{75} - D_{25}):	333.7	1.648

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	19.2%
SAND:	88.4%	MEDIUM SAND:	31.1%
MUD:	11.6%	FINE SAND:	26.9%
		V FINE SAND:	6.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.7%
FINE GRAVEL:	0.0%	FINE SILT:	2.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.6%
V COARSE SAND:	5.0%	CLAY:	1.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	371.1	210.1	2.251	270.1	1.888	Medium Sand
SORTING (σ):	317.7	4.167	2.059	3.336	1.738	Poorly Sorted
SKEWNESS (Sk):	1.563	-1.839	1.839	-0.272	0.272	Fine Skewed
KURTOSIS (K):	5.902	6.640	6.640	1.805	1.805	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 57.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Medium Sand

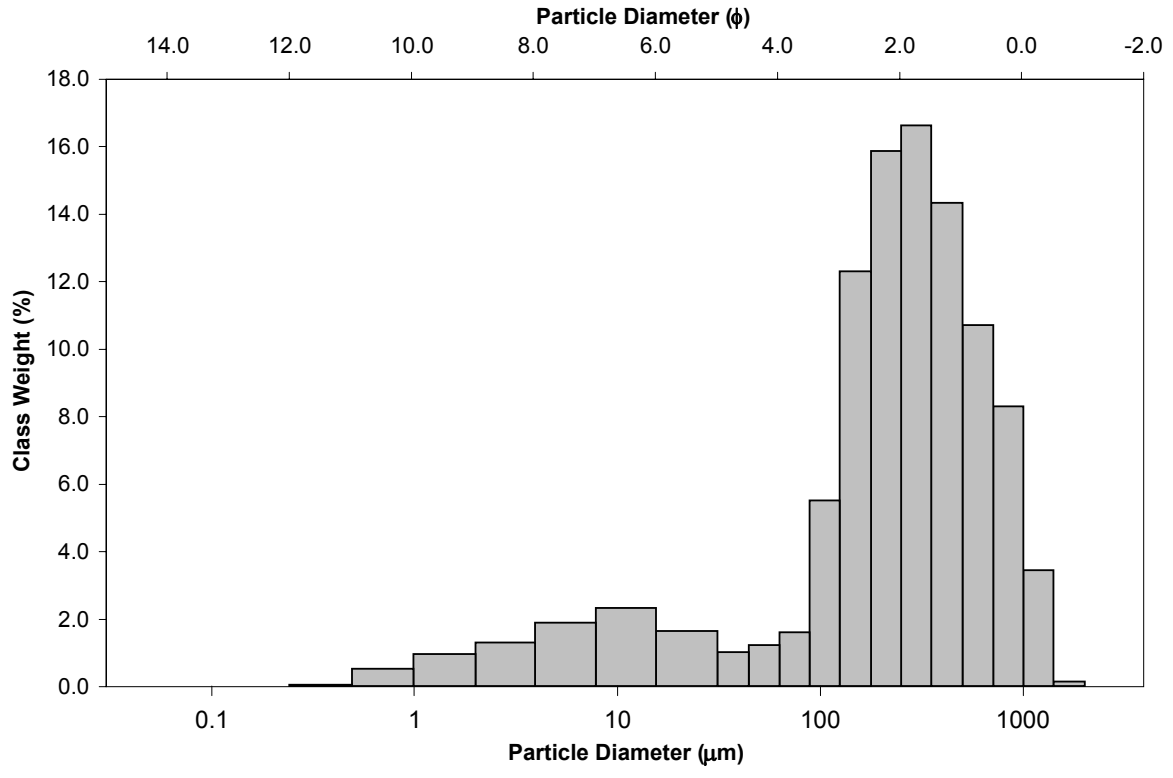
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	9.668	0.438
MEDIAN or D_{50}:	246.2	2.022
D_{90}:	737.9	6.693
(D_{90} / D_{10}):	76.32	15.26
(D_{90} - D_{10}):	728.2	6.254
(D_{75} / D_{25}):	3.549	2.579
(D_{75} - D_{25}):	322.1	1.827

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	17.6%
SAND:	82.0%	MEDIUM SAND:	28.5%
MUD:	18.0%	FINE SAND:	26.0%
		V FINE SAND:	6.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	4.3%
FINE GRAVEL:	0.0%	FINE SILT:	3.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.4%
V COARSE SAND:	3.3%	CLAY:	2.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	325.4	158.1	2.661	166.0	2.591	Fine Sand
SORTING (σ):	289.2	5.162	2.368	4.821	2.269	Very Poorly Sorted
SKEWNESS (Sk):	1.298	-1.495	1.495	-0.462	0.462	Very Fine Skewed
KURTOSIS (K):	4.607	4.658	4.658	1.789	1.789	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 62.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Fine Sand

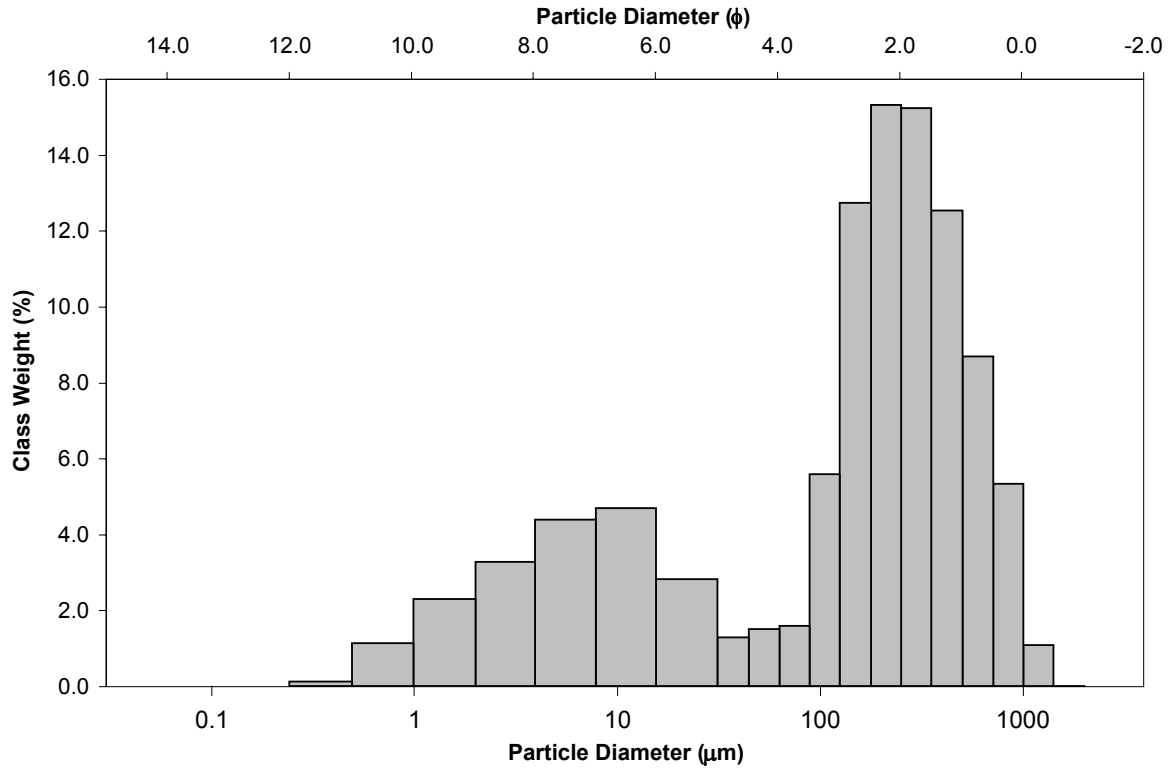
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:	11.70	6.502
MODE 3:		
D_{10}:	3.243	0.809
MEDIAN or D_{50}:	172.1	2.538
D_{90}:	570.8	8.268
(D_{90} / D_{10}):	176.0	10.22
(D_{90} - D_{10}):	567.5	7.459
(D_{75} / D_{25}):	25.45	3.985
(D_{75} - D_{25}):	324.8	4.669

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	11.9%
SAND:	66.0%	MEDIUM SAND:	23.4%
MUD:	34.0%	FINE SAND:	23.7%
		V FINE SAND:	6.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	4.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	7.9%
FINE GRAVEL:	0.0%	FINE SILT:	7.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	5.5%
V COARSE SAND:	0.9%	CLAY:	6.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	231.8	76.29	3.712	77.28	3.694	Very Fine Sand
SORTING (σ):	243.7	7.331	2.874	7.433	2.894	Very Poorly Sorted
SKEWNESS (Sk):	1.386	-0.802	0.802	-0.541	0.541	Very Fine Skewed
KURTOSIS (K):	4.940	2.365	2.365	0.772	0.772	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 67.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Fine Sand

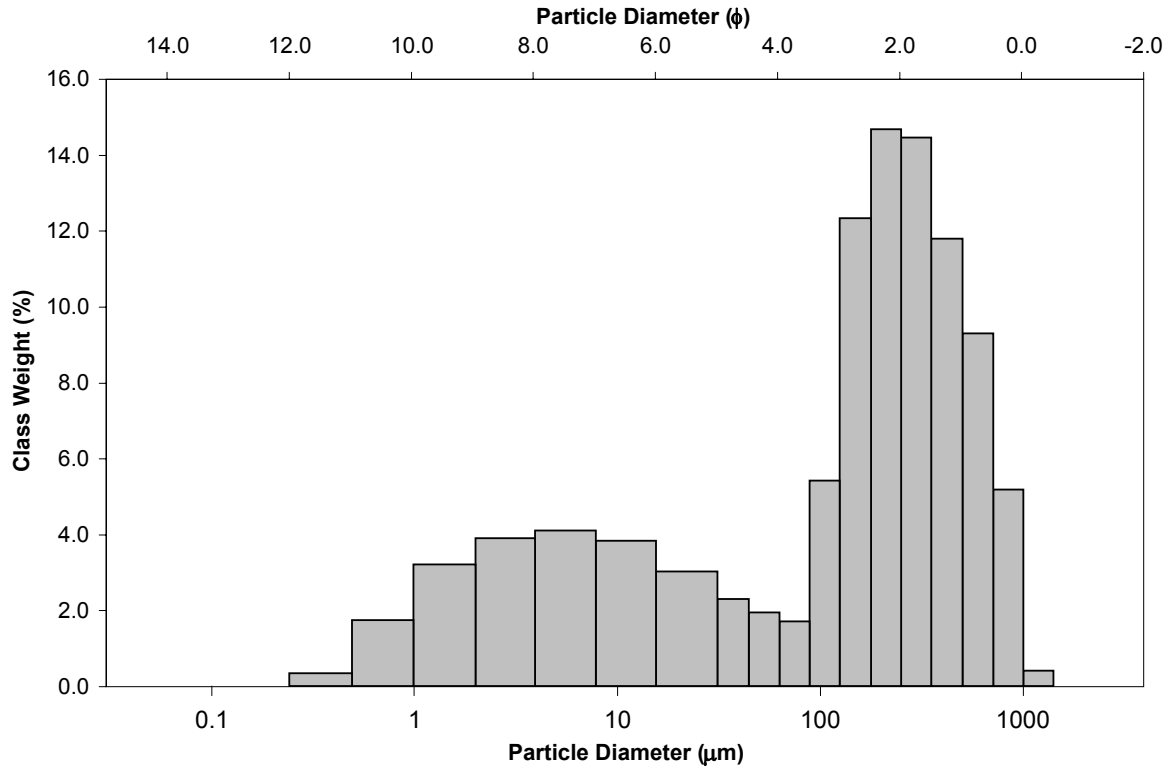
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:	5.850	7.502
MODE 3:		
D_{10}:	2.222	0.841
MEDIAN or D_{50}:	157.6	2.666
D_{90}:	558.3	8.814
(D_{90} / D_{10}):	251.2	10.48
(D_{90} - D_{10}):	556.1	7.973
(D_{75} / D_{25}):	30.69	4.061
(D_{75} - D_{25}):	316.1	4.940

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	12.1%
SAND:	62.9%	MEDIUM SAND:	21.9%
MUD:	37.1%	FINE SAND:	22.6%
		V FINE SAND:	6.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	5.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.4%
FINE GRAVEL:	0.0%	FINE SILT:	6.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	6.5%
V COARSE SAND:	0.3%	CLAY:	8.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	218.3	64.32	3.959	66.35	3.914	Very Fine Sand
SORTING (σ):	234.1	8.235	3.042	8.414	3.073	Very Poorly Sorted
SKEWNESS (Sk):	1.273	-0.745	0.745	-0.545	0.545	Very Fine Skewed
KURTOSIS (K):	4.296	2.228	2.228	0.763	0.763	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 72.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Medium Sand

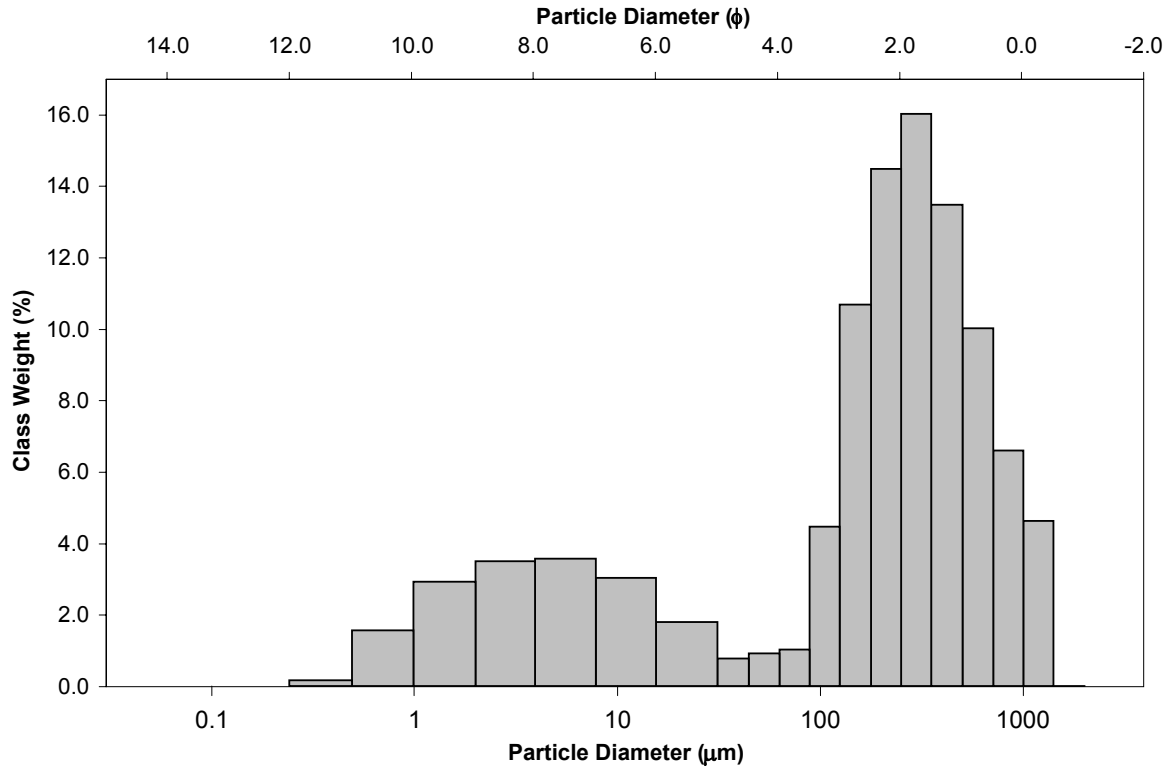
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:	5.850	7.502
MODE 3:		
D_{10}:	2.463	0.518
MEDIAN or D_{50}:	209.5	2.255
D_{90}:	698.1	8.665
(D_{90} / D_{10}):	283.5	16.72
(D_{90} - D_{10}):	695.7	8.147
(D_{75} / D_{25}):	27.63	4.717
(D_{75} - D_{25}):	394.6	4.788

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	14.4%
SAND:	70.1%	MEDIUM SAND:	25.3%
MUD:	29.9%	FINE SAND:	21.7%
		V FINE SAND:	4.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	5.2%
FINE GRAVEL:	0.0%	FINE SILT:	6.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	6.0%
V COARSE SAND:	4.0%	CLAY:	8.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	287.5	89.20	3.487	82.50	3.599	Very Fine Sand
SORTING (σ):	299.8	8.443	3.078	8.834	3.143	Very Poorly Sorted
SKEWNESS (Sk):	1.370	-0.920	0.920	-0.568	0.568	Very Fine Skewed
KURTOSIS (K):	4.555	2.500	2.500	0.814	0.814	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 77.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Medium Sand

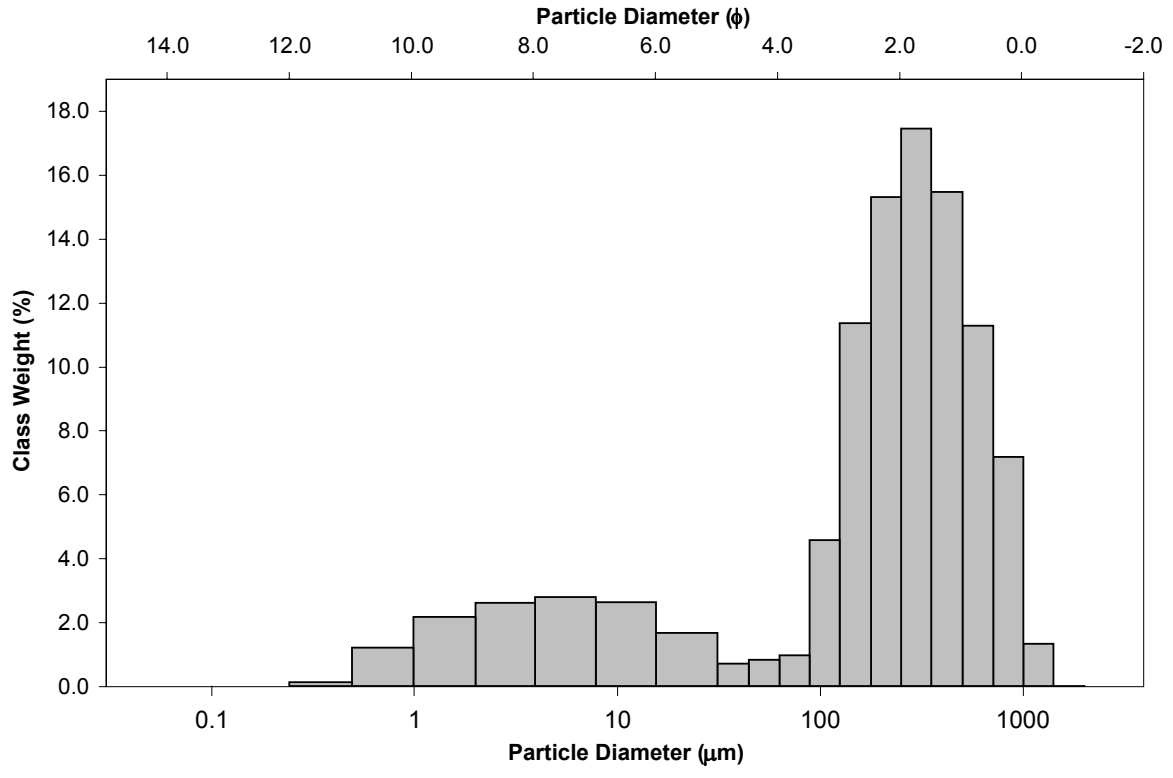
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:	5.850	7.502
MODE 3:		
D_{10}:	3.474	0.621
MEDIAN or D_{50}:	229.7	2.122
D_{90}:	650.1	8.169
(D_{90} / D_{10}):	187.1	13.15
(D_{90} - D_{10}):	646.6	7.548
(D_{75} / D_{25}):	5.952	3.025
(D_{75} - D_{25}):	344.7	2.573

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	16.4%
SAND:	75.3%	MEDIUM SAND:	29.1%
MUD:	24.7%	FINE SAND:	23.6%
		V FINE SAND:	5.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	4.7%
FINE GRAVEL:	0.0%	FINE SILT:	5.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	4.6%
V COARSE SAND:	1.2%	CLAY:	6.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	285.5	110.3	3.180	99.42	3.330	Very Fine Sand
SORTING (σ):	257.9	7.095	2.827	7.317	2.871	Very Poorly Sorted
SKEWNESS (Sk):	1.085	-1.207	1.207	-0.599	0.599	Very Fine Skewed
KURTOSIS (K):	4.002	3.224	3.224	1.435	1.435	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 82.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Fine Sand

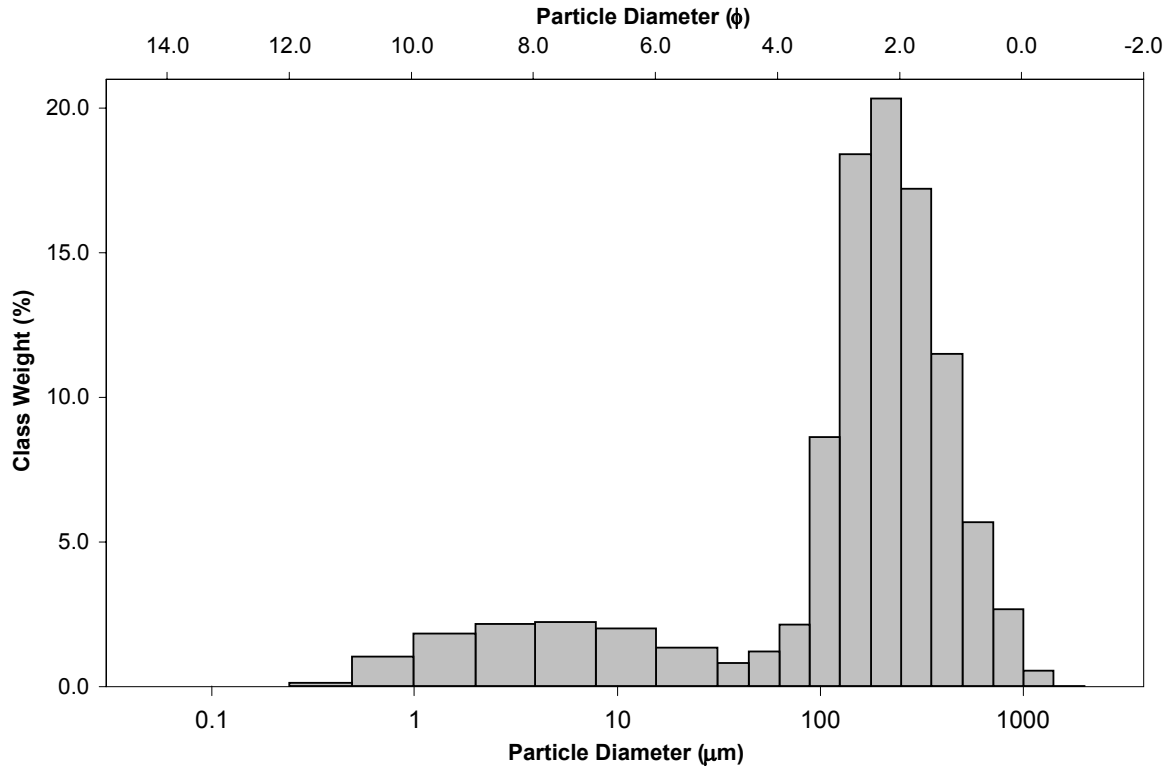
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	4.460	1.093
MEDIAN or D_{50}:	184.9	2.435
D_{90}:	468.7	7.809
(D_{90} / D_{10}):	105.1	7.142
(D_{90} - D_{10}):	464.2	6.715
(D_{75} / D_{25}):	3.174	1.972
(D_{75} - D_{25}):	208.9	1.666

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	7.6%
SAND:	78.9%	MEDIUM SAND:	25.9%
MUD:	21.1%	FINE SAND:	35.1%
		V FINE SAND:	9.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.6%
FINE GRAVEL:	0.0%	FINE SILT:	4.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.9%
V COARSE SAND:	0.5%	CLAY:	5.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	225.3	104.5	3.259	97.84	3.353	Very Fine Sand
SORTING (σ):	197.3	5.709	2.513	5.614	2.489	Very Poorly Sorted
SKEWNESS (Sk):	1.551	-1.453	1.453	-0.577	0.577	Very Fine Skewed
KURTOSIS (K):	6.639	4.117	4.117	2.067	2.067	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 87.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Medium Sand

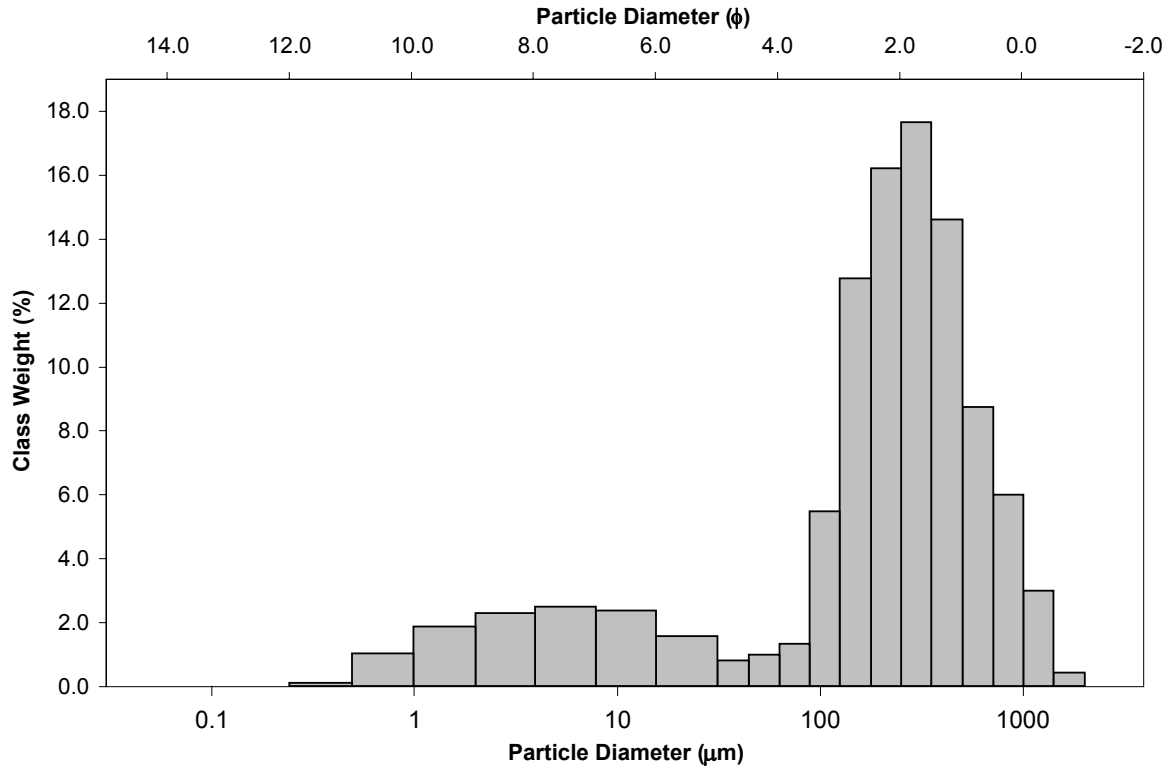
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	4.226	0.599
MEDIAN or D_{50}:	223.0	2.165
D_{90}:	660.4	7.886
(D_{90} / D_{10}):	156.3	13.18
(D_{90} - D_{10}):	656.2	7.288
(D_{75} / D_{25}):	4.151	2.542
(D_{75} - D_{25}):	301.6	2.053

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	13.3%
SAND:	77.4%	MEDIUM SAND:	28.9%
MUD:	22.6%	FINE SAND:	26.0%
		V FINE SAND:	6.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	4.2%
FINE GRAVEL:	0.0%	FINE SILT:	4.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	4.1%
V COARSE SAND:	3.0%	CLAY:	5.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	292.5	118.8	3.073	107.1	3.223	Very Fine Sand
SORTING (σ):	283.3	6.551	2.712	6.678	2.739	Very Poorly Sorted
SKEWNESS (Sk):	1.636	-1.282	1.282	-0.564	0.564	Very Fine Skewed
KURTOSIS (K):	6.412	3.595	3.595	1.784	1.784	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 92.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Fine Sand

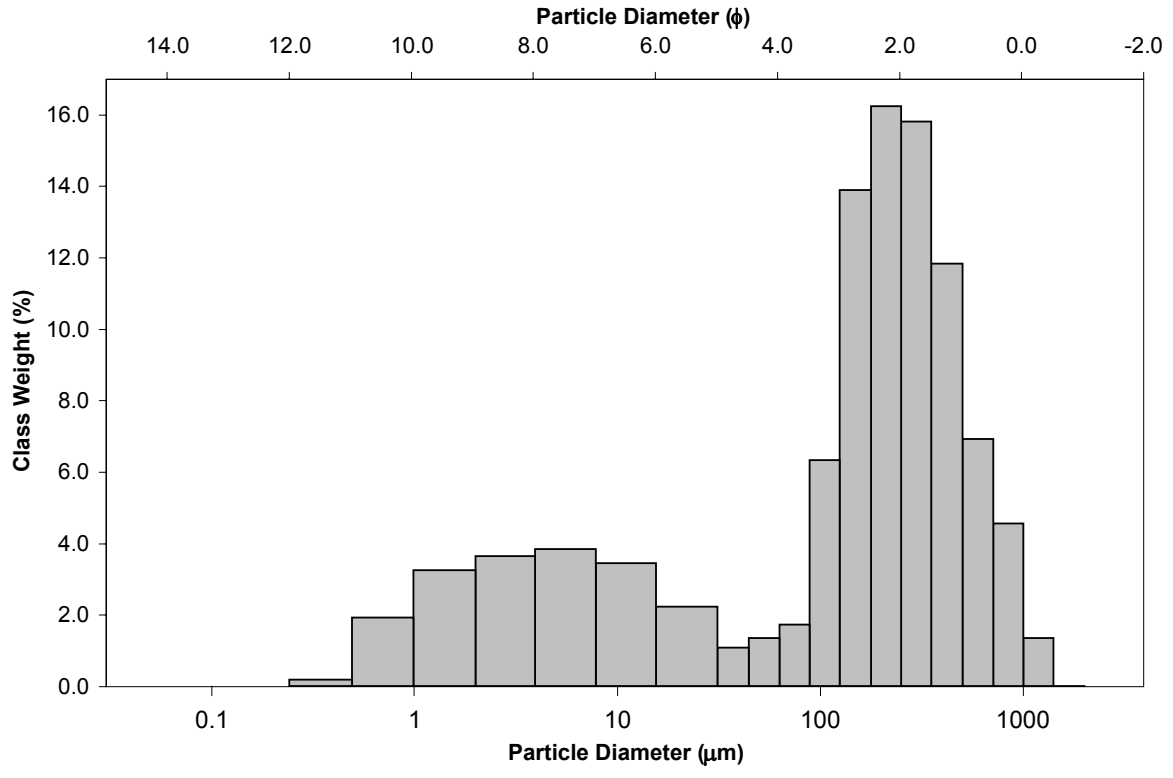
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:	5.850	7.502
MODE 3:		
D_{10}:	2.167	0.924
MEDIAN or D_{50}:	166.4	2.587
D_{90}:	527.1	8.850
(D_{90} / D_{10}):	243.3	9.581
(D_{90} - D_{10}):	525.0	7.926
(D_{75} / D_{25}):	27.64	3.891
(D_{75} - D_{25}):	305.8	4.789

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	9.8%
SAND:	66.6%	MEDIUM SAND:	23.3%
MUD:	33.4%	FINE SAND:	25.5%
		V FINE SAND:	6.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	5.8%
FINE GRAVEL:	0.0%	FINE SILT:	6.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	6.2%
V COARSE SAND:	1.1%	CLAY:	9.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	222.3	68.62	3.865	66.55	3.909	Very Fine Sand
SORTING (σ):	238.6	8.136	3.024	8.332	3.059	Very Poorly Sorted
SKEWNESS (Sk):	1.584	-0.836	0.836	-0.573	0.573	Very Fine Skewed
KURTOSIS (K):	5.940	2.350	2.350	0.791	0.791	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 97.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Fine Silty Fine Sand

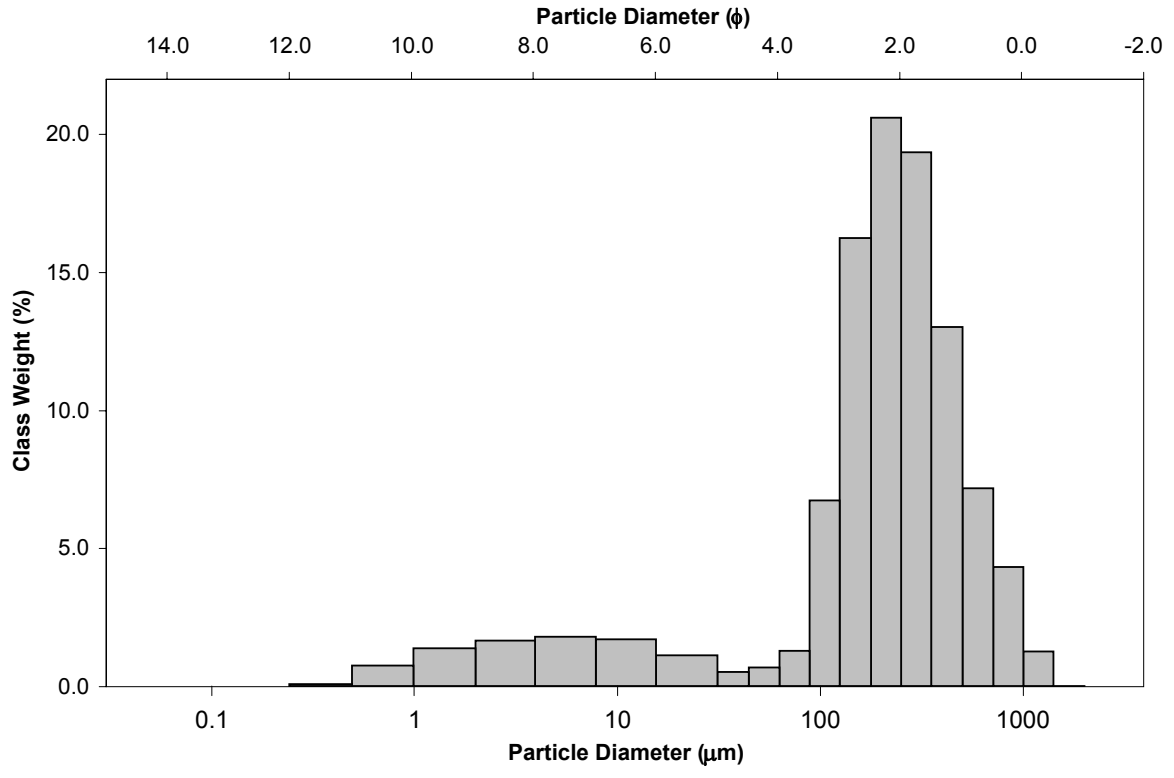
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	7.086	0.861
MEDIAN or D_{50}:	214.8	2.219
D_{90}:	550.4	7.141
(D_{90} / D_{10}):	77.67	8.290
(D_{90} - D_{10}):	543.4	6.279
(D_{75} / D_{25}):	2.713	1.938
(D_{75} - D_{25}):	217.8	1.440

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	10.7%
SAND:	83.2%	MEDIUM SAND:	29.8%
MUD:	16.8%	FINE SAND:	34.1%
		V FINE SAND:	7.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.2%
FINE GRAVEL:	0.0%	FINE SILT:	3.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.1%
V COARSE SAND:	1.2%	CLAY:	4.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	266.1	134.7	2.892	155.5	2.685	Fine Sand
SORTING (σ):	225.4	5.176	2.372	4.339	2.117	Very Poorly Sorted
SKEWNESS (Sk):	1.548	-1.674	1.674	-0.488	0.488	Very Fine Skewed
KURTOSIS (K):	6.245	5.066	5.066	2.338	2.338	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 102.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

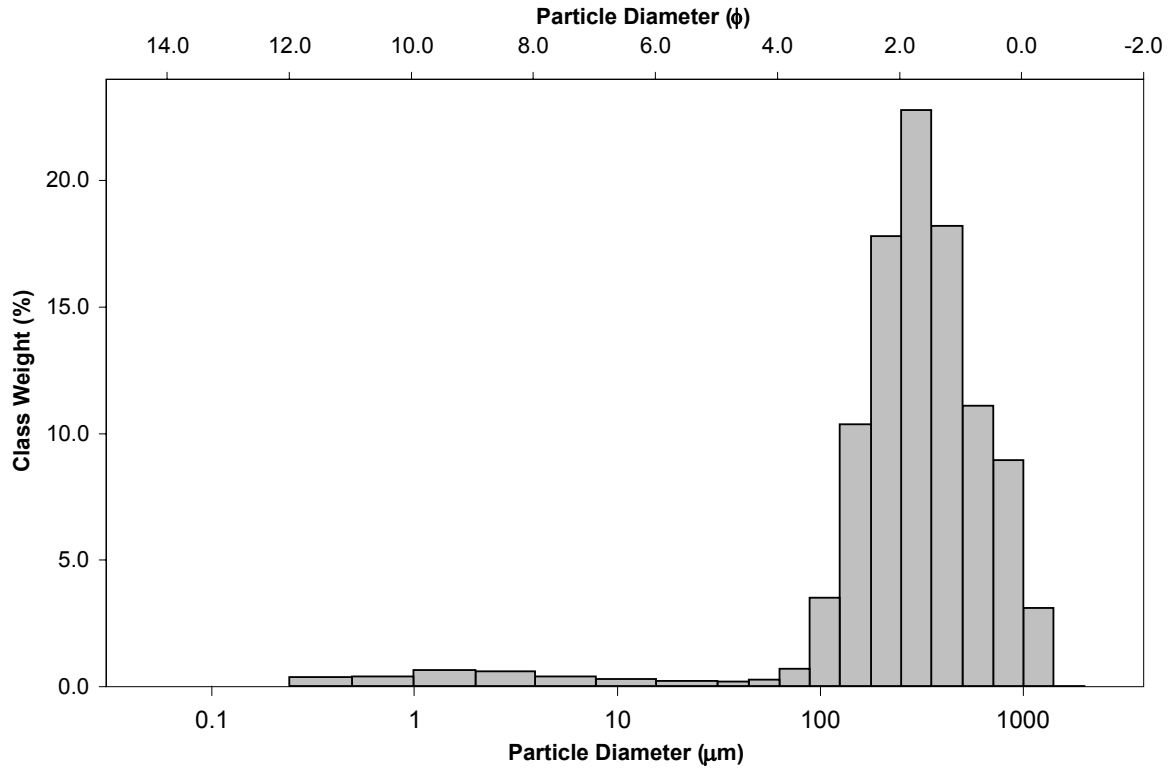
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	123.2	0.403
MEDIAN or D_{50}:	303.4	1.721
D_{90}:	756.5	3.021
(D_{90} / D_{10}):	6.140	7.504
(D_{90} - D_{10}):	633.3	2.618
(D_{75} / D_{25}):	2.451	2.209
(D_{75} - D_{25}):	282.1	1.293

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	19.6%
SAND:	94.0%	MEDIUM SAND:	39.9%
MUD:	6.0%	FINE SAND:	27.4%
		V FINE SAND:	4.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.6%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	3.0%	CLAY:	2.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	375.2	246.5	2.021	305.7	1.710	Medium Sand
SORTING (σ):	262.1	3.738	1.902	2.707	1.437	Poorly Sorted
SKEWNESS (Sk):	1.229	-2.885	2.885	-0.231	0.231	Fine Skewed
KURTOSIS (K):	4.402	12.74	12.74	1.953	1.953	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 107.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Medium Silty Fine Sand

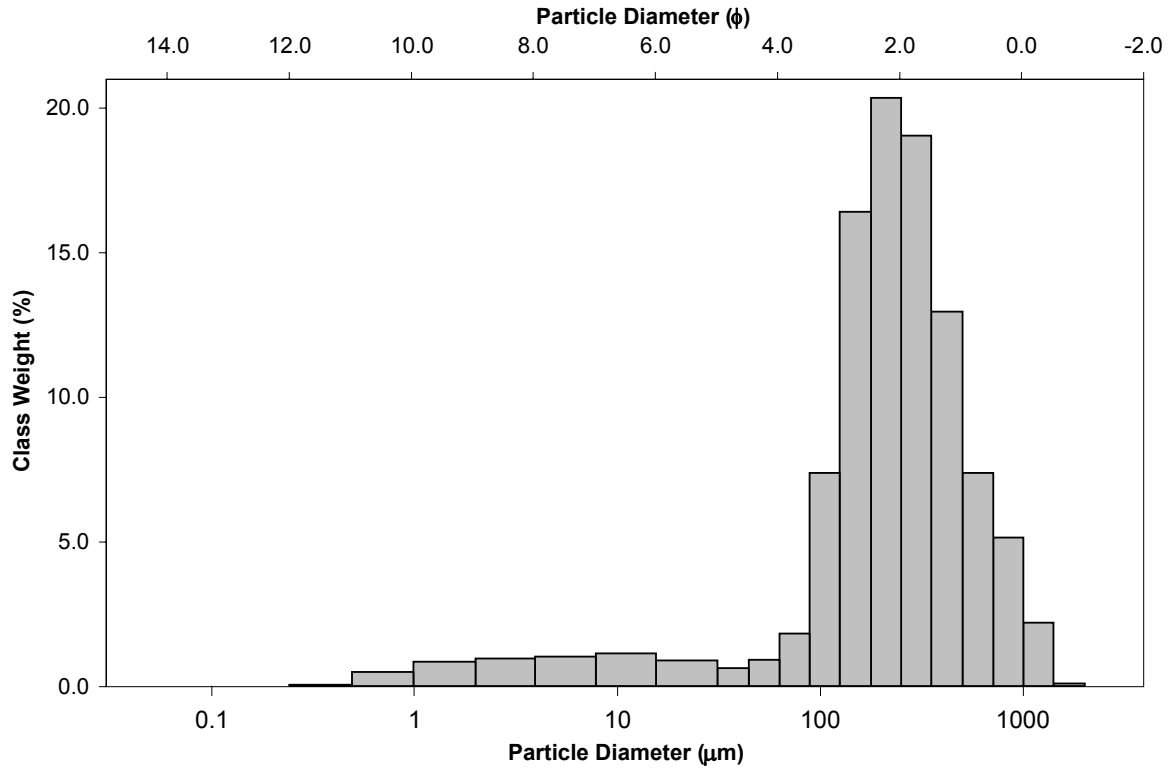
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	27.96	0.709
MEDIAN or D_{50}:	226.2	2.144
D_{90}:	611.9	5.160
(D_{90} / D_{10}):	21.88	7.281
(D_{90} - D_{10}):	583.9	4.452
(D_{75} / D_{25}):	2.670	1.983
(D_{75} - D_{25}):	230.3	1.417

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	11.9%
SAND:	88.3%	MEDIUM SAND:	30.3%
MUD:	11.7%	FINE SAND:	35.0%
		V FINE SAND:	8.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.2%
FINE GRAVEL:	0.0%	FINE SILT:	2.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.8%
V COARSE SAND:	2.2%	CLAY:	2.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	292.9	170.5	2.552	220.3	2.182	Fine Sand
SORTING (σ):	245.6	4.116	2.041	3.219	1.686	Poorly Sorted
SKEWNESS (Sk):	1.721	-1.997	1.997	-0.276	0.276	Fine Skewed
KURTOSIS (K):	6.702	7.248	7.248	2.146	2.146	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 112.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Fine Sand

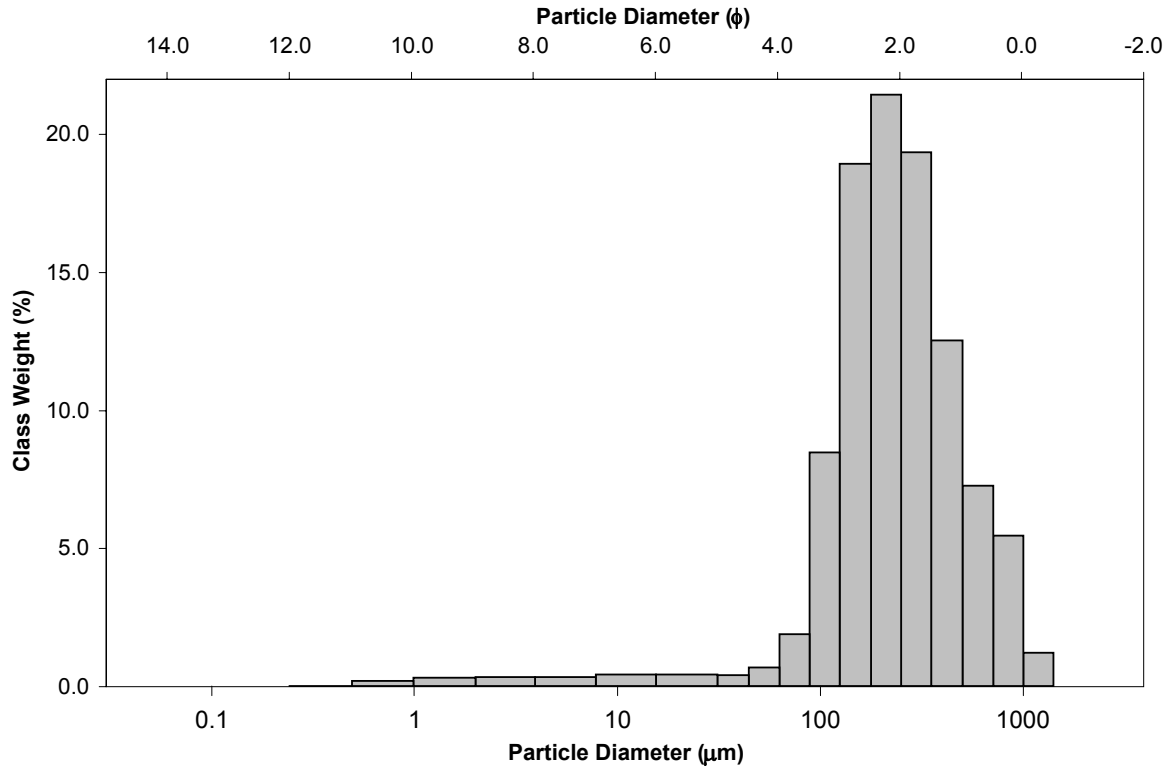
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	99.71	0.741
MEDIAN or D_{50}:	229.8	2.122
D_{90}:	598.1	3.326
(D_{90} / D_{10}):	5.999	4.486
(D_{90} - D_{10}):	498.4	2.585
(D_{75} / D_{25}):	2.437	1.881
(D_{75} - D_{25}):	214.6	1.285

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	12.5%
SAND:	94.8%	MEDIUM SAND:	31.2%
MUD:	5.2%	FINE SAND:	39.7%
		V FINE SAND:	10.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	0.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	1.2%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	296.8	211.9	2.238	238.7	2.067	Fine Sand
SORTING (σ):	220.4	2.762	1.466	2.059	1.042	Poorly Sorted
SKEWNESS (Sk):	1.660	-2.437	2.437	0.013	-0.013	Symmetrical
KURTOSIS (K):	6.103	12.73	12.73	1.198	1.198	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **117.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Fine Sand

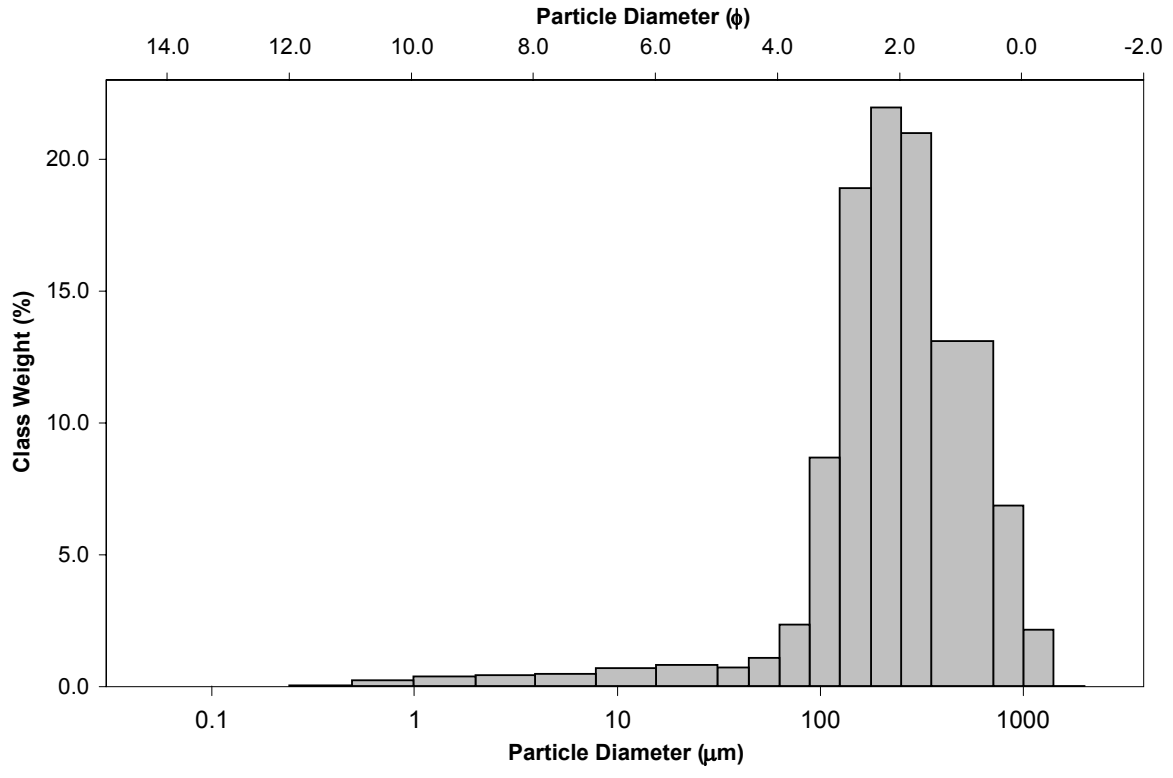
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	93.23	0.596
MEDIAN or D_{50}:	242.7	2.043
D_{90}:	661.7	3.423
(D_{90} / D_{10}):	7.097	5.746
(D_{90} - D_{10}):	568.5	2.827
(D_{75} / D_{25}):	2.782	2.173
(D_{75} - D_{25}):	267.7	1.476

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	17.3%
SAND:	93.2%	MEDIUM SAND:	29.2%
MUD:	6.8%	FINE SAND:	35.3%
		V FINE SAND:	9.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	1.9%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	323.4	217.7	2.199	254.3	1.975	Medium Sand
SORTING (σ):	243.2	2.977	1.574	2.427	1.279	Poorly Sorted
SKEWNESS (Sk):	1.355	-2.209	2.209	-0.089	0.089	Symmetrical
KURTOSIS (K):	4.973	10.51	10.51	1.354	1.354	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 1: 122.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Fine Sand

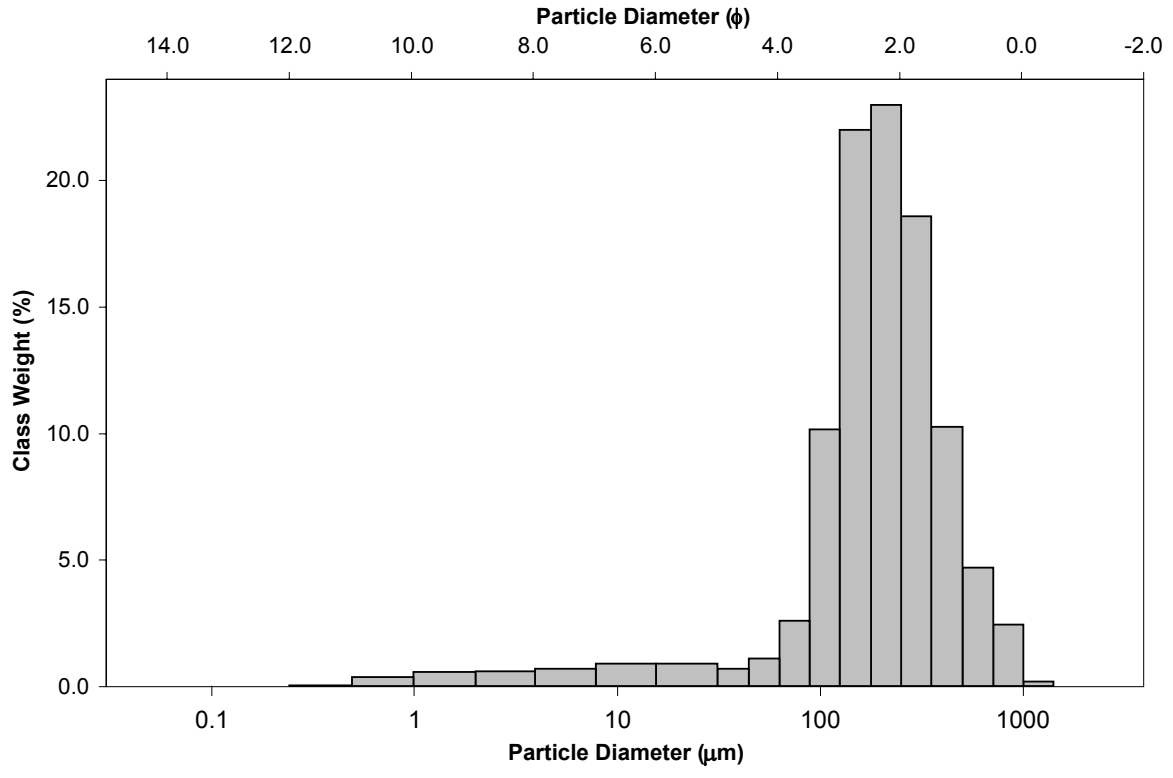
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	66.84	1.148
MEDIAN or D_{50}:	196.7	2.346
D_{90}:	451.2	3.903
(D_{90} / D_{10}):	6.750	3.399
(D_{90} - D_{10}):	384.3	2.755
(D_{75} / D_{25}):	2.293	1.692
(D_{75} - D_{25}):	169.9	1.197

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	6.9%
SAND:	90.5%	MEDIUM SAND:	27.6%
MUD:	9.5%	FINE SAND:	43.4%
		V FINE SAND:	12.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.8%
FINE GRAVEL:	0.0%	FINE SILT:	1.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	0.2%	CLAY:	1.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	238.4	160.8	2.637	194.0	2.366	Fine Sand
SORTING (σ):	171.8	3.250	1.700	2.538	1.344	Poorly Sorted
SKEWNESS (Sk):	1.634	-2.366	2.366	-0.246	0.246	Fine Skewed
KURTOSIS (K):	6.871	9.886	9.886	1.990	1.990	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **127.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Fine Sand

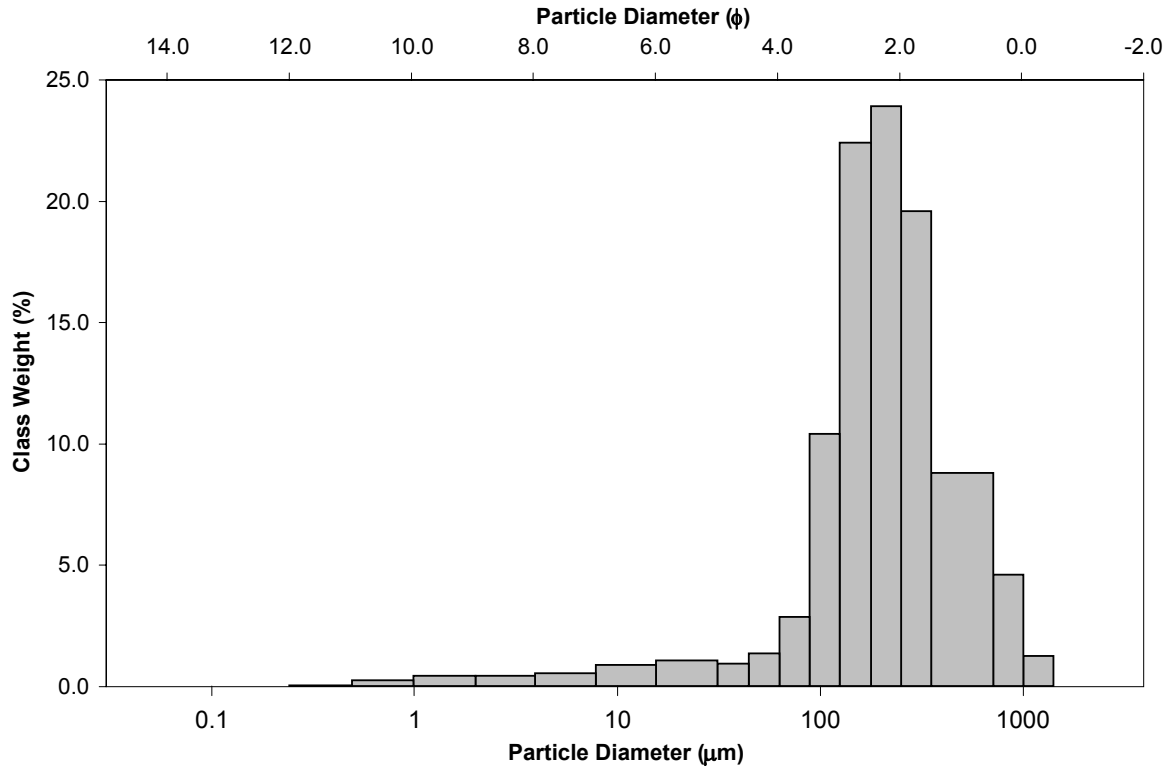
	μm	ϕ
MODE 1:	213.5	2.249
MODE 2:		
MODE 3:		
D_{10}:	76.01	0.804
MEDIAN or D_{50}:	206.2	2.278
D_{90}:	572.9	3.718
(D_{90} / D_{10}):	7.537	4.626
(D_{90} - D_{10}):	496.9	2.914
(D_{75} / D_{25}):	2.399	1.777
(D_{75} - D_{25}):	189.1	1.262

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	12.0%
SAND:	91.4%	MEDIUM SAND:	25.1%
MUD:	8.6%	FINE SAND:	41.4%
		V FINE SAND:	11.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.8%
V COARSE SAND:	1.1%	CLAY:	1.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	273.0	181.3	2.463	212.4	2.235	Fine Sand
SORTING (σ):	216.5	3.061	1.614	2.497	1.320	Poorly Sorted
SKEWNESS (Sk):	1.696	-2.164	2.164	-0.130	0.130	Fine Skewed
KURTOSIS (K):	6.476	9.910	9.910	1.728	1.728	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 2.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

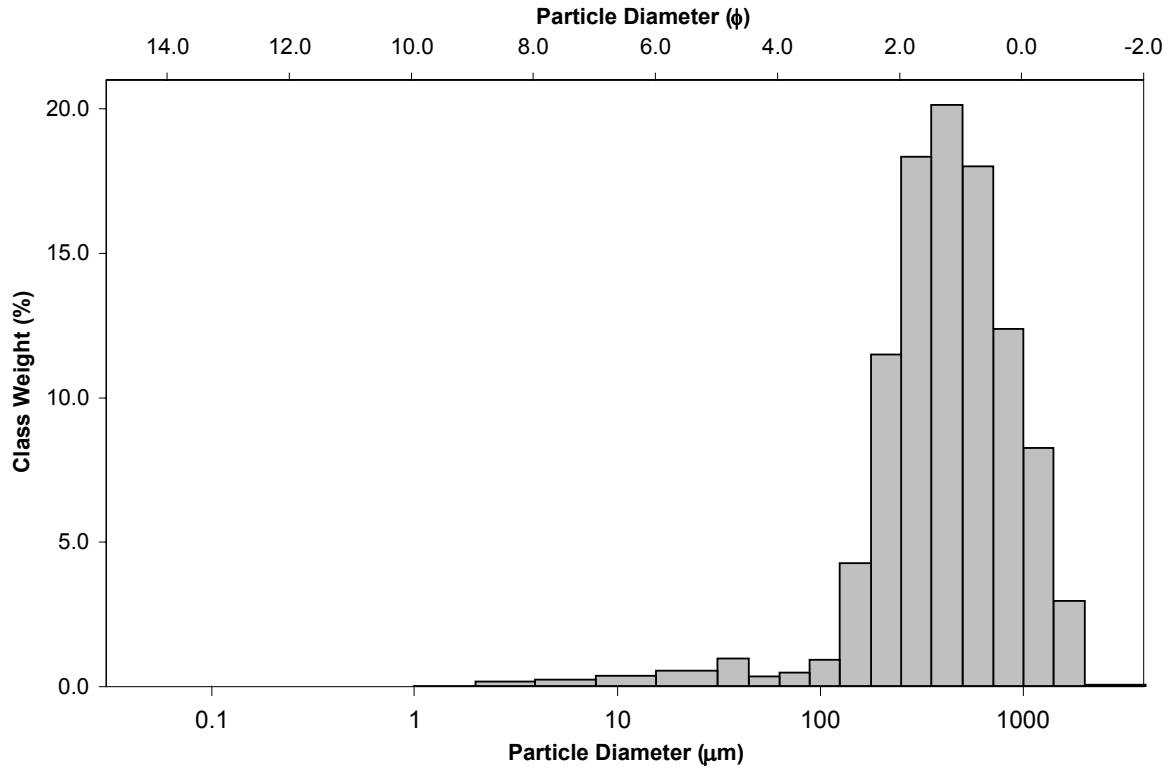
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	180.1	-0.068
MEDIAN or D_{50}:	428.9	1.221
D_{90}:	1048.0	2.473
(D_{90} / D_{10}):	5.819	-36.547
(D_{90} - D_{10}):	867.9	2.541
(D_{75} / D_{25}):	2.527	3.455
(D_{75} - D_{25}):	414.2	1.337

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	30.1%
SAND:	96.1%	MEDIUM SAND:	38.1%
MUD:	3.8%	FINE SAND:	15.5%
		V FINE SAND:	1.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.7%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.3%
V COARSE SAND:	11.0%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	535.0	397.7	1.330	432.3	1.210	Medium Sand
SORTING (σ):	371.9	2.446	1.290	2.042	1.030	Poorly Sorted
SKEWNESS (Sk):	1.452	-1.876	1.876	-0.033	0.033	Symmetrical
KURTOSIS (K):	5.951	9.669	9.669	1.068	1.068	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 7.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

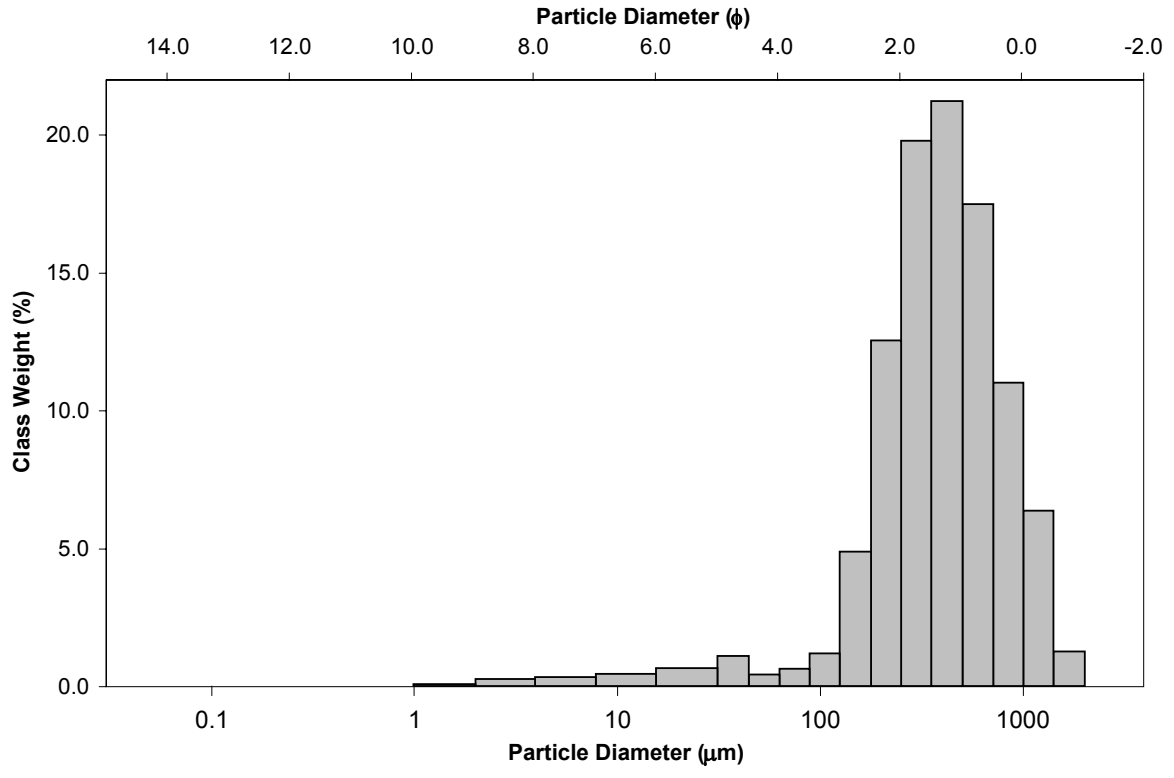
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	156.3	0.117
MEDIAN or D_{50}:	393.6	1.345
D_{90}:	922.2	2.678
(D_{90} / D_{10}):	5.900	22.92
(D_{90} - D_{10}):	765.9	2.561
(D_{75} / D_{25}):	2.432	2.851
(D_{75} - D_{25}):	364.3	1.282

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	28.1%
SAND:	94.9%	MEDIUM SAND:	40.4%
MUD:	5.1%	FINE SAND:	17.1%
		V FINE SAND:	1.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.9%
FINE GRAVEL:	0.0%	FINE SILT:	0.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.5%
V COARSE SAND:	7.5%	CLAY:	0.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	477.5	349.6	1.516	391.0	1.355	Medium Sand
SORTING (σ):	321.6	2.626	1.393	2.194	1.133	Poorly Sorted
SKEWNESS (Sk):	1.276	-2.188	2.188	-0.148	0.148	Fine Skewed
KURTOSIS (K):	4.876	10.48	10.48	1.372	1.372	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 12.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

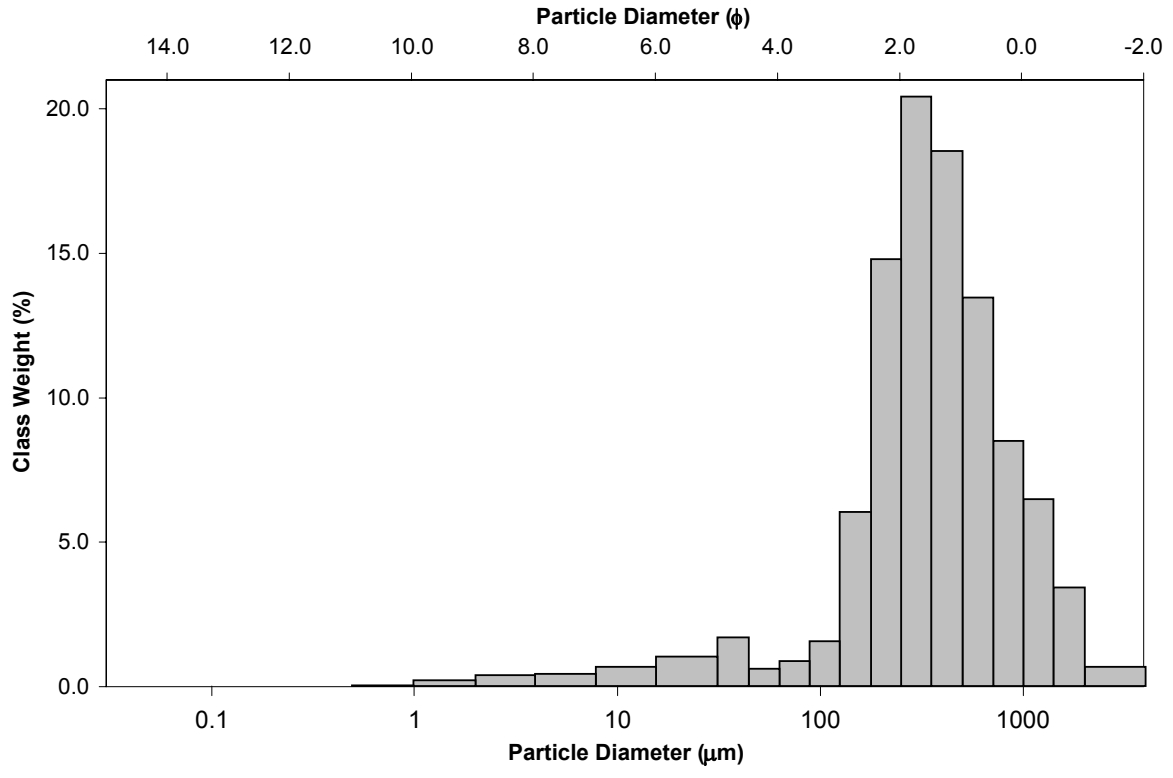
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	125.7	-0.070
MEDIAN or D_{50}:	354.9	1.495
D_{90}:	1049.9	2.991
(D_{90} / D_{10}):	8.350	-42.549
(D_{90} - D_{10}):	924.2	3.062
(D_{75} / D_{25}):	2.738	3.009
(D_{75} - D_{25}):	384.5	1.453

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.3%	COARSE SAND:	21.3%
SAND:	91.2%	MEDIUM SAND:	37.7%
MUD:	7.5%	FINE SAND:	20.2%
		V FINE SAND:	2.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.3%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	1.3%	V FINE SILT:	0.7%
V COARSE SAND:	9.6%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	500.4	317.1	1.657	370.6	1.432	Medium Sand
SORTING (σ):	471.1	3.152	1.656	2.633	1.397	Poorly Sorted
SKEWNESS (Sk):	2.596	-1.748	1.748	-0.108	0.108	Fine Skewed
KURTOSIS (K):	12.29	7.971	7.971	1.586	1.586	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 17.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

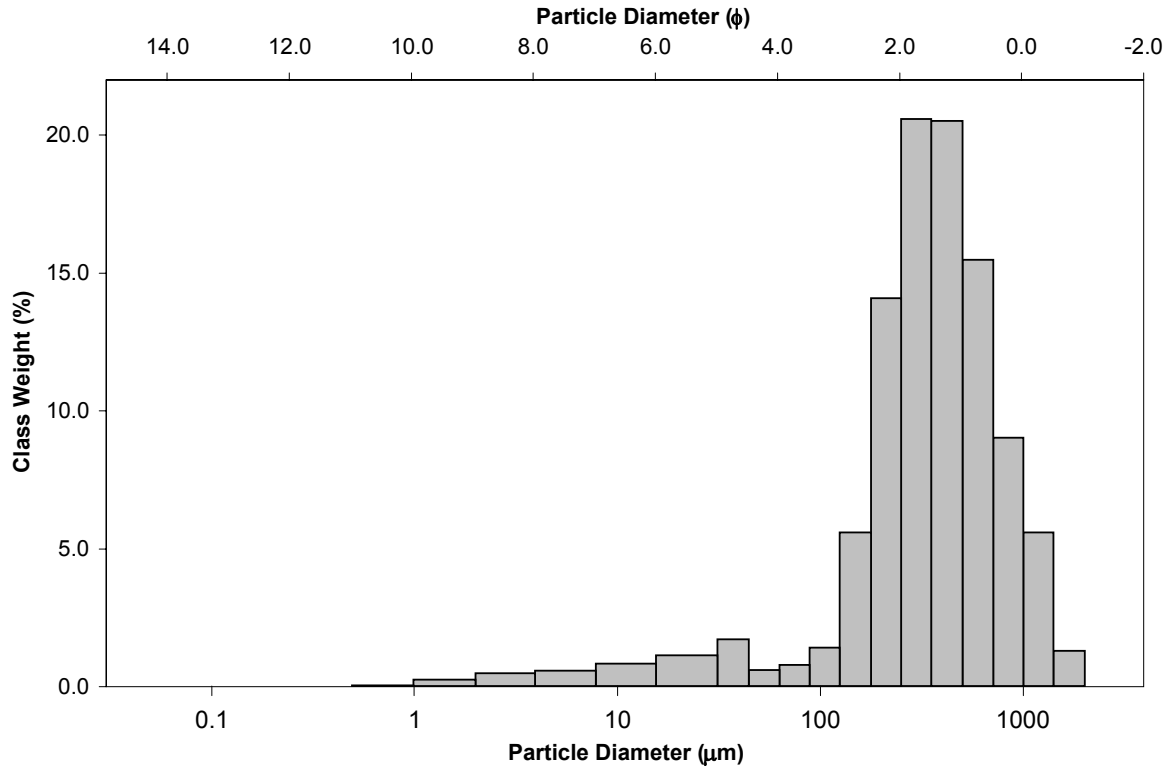
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	107.5	0.193
MEDIAN or D_{50}:	356.0	1.490
D_{90}:	874.8	3.218
(D_{90} / D_{10}):	8.140	16.67
(D_{90} - D_{10}):	767.3	3.025
(D_{75} / D_{25}):	2.552	2.652
(D_{75} - D_{25}):	345.0	1.352

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	23.9%
SAND:	91.5%	MEDIUM SAND:	39.9%
MUD:	8.5%	FINE SAND:	19.0%
		V FINE SAND:	2.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.9%
V COARSE SAND:	6.6%	CLAY:	0.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	438.3	292.8	1.772	352.8	1.503	Medium Sand
SORTING (σ):	321.6	3.175	1.667	2.576	1.365	Poorly Sorted
SKEWNESS (Sk):	1.392	-2.081	2.081	-0.224	0.224	Fine Skewed
KURTOSIS (K):	5.366	8.496	8.496	1.741	1.741	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 22.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

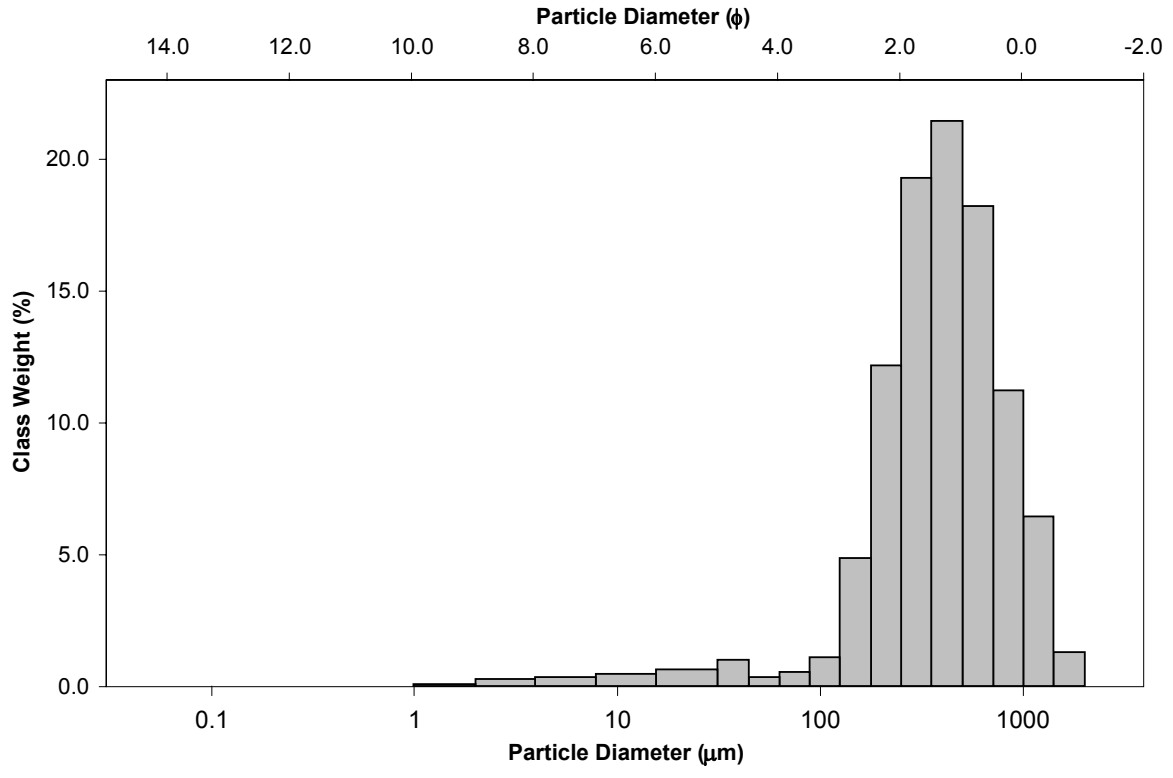
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	160.1	0.110
MEDIAN or D_{50}:	401.1	1.318
D_{90}:	926.6	2.643
(D_{90} / D_{10}):	5.788	24.04
(D_{90} - D_{10}):	766.5	2.533
(D_{75} / D_{25}):	2.426	2.891
(D_{75} - D_{25}):	367.9	1.279

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	29.0%
SAND:	95.0%	MEDIUM SAND:	40.1%
MUD:	5.0%	FINE SAND:	16.7%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.9%
FINE GRAVEL:	0.0%	FINE SILT:	0.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.6%
V COARSE SAND:	7.6%	CLAY:	0.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	483.3	354.6	1.496	396.4	1.335	Medium Sand
SORTING (σ):	322.0	2.632	1.396	2.160	1.111	Poorly Sorted
SKEWNESS (Sk):	1.256	-2.245	2.245	-0.148	0.148	Fine Skewed
KURTOSIS (K):	4.837	10.73	10.73	1.333	1.333	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 27.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

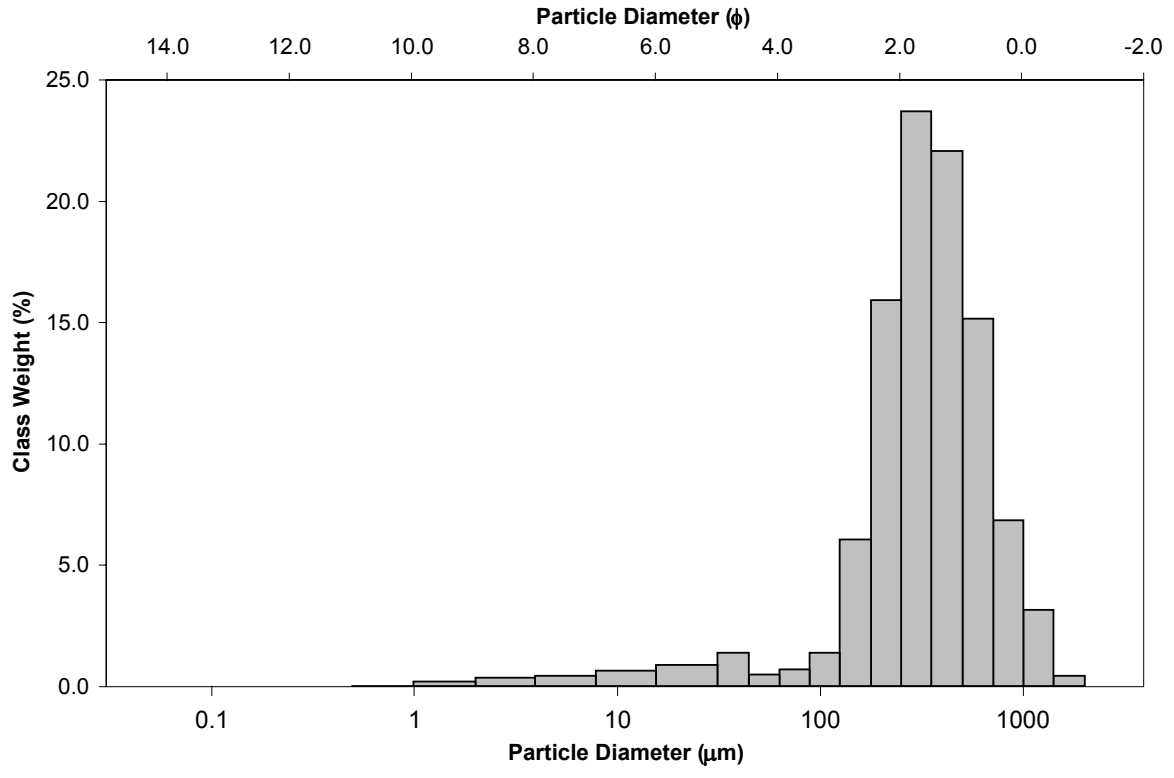
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	134.3	0.488
MEDIAN or D_{50}:	336.1	1.573
D_{90}:	713.0	2.896
(D_{90} / D_{10}):	5.309	5.934
(D_{90} - D_{10}):	578.7	2.408
(D_{75} / D_{25}):	2.251	2.174
(D_{75} - D_{25}):	278.4	1.170

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.6%
SAND:	93.3%	MEDIUM SAND:	44.7%
MUD:	6.7%	FINE SAND:	21.4%
		V FINE SAND:	2.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	3.5%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	398.5	288.4	1.794	335.7	1.575	Medium Sand
SORTING (σ):	264.5	2.772	1.471	2.257	1.175	Poorly Sorted
SKEWNESS (Sk):	1.442	-2.346	2.346	-0.200	0.200	Fine Skewed
KURTOSIS (K):	6.185	10.55	10.55	1.696	1.696	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 32.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Coarse Silty Medium Sand

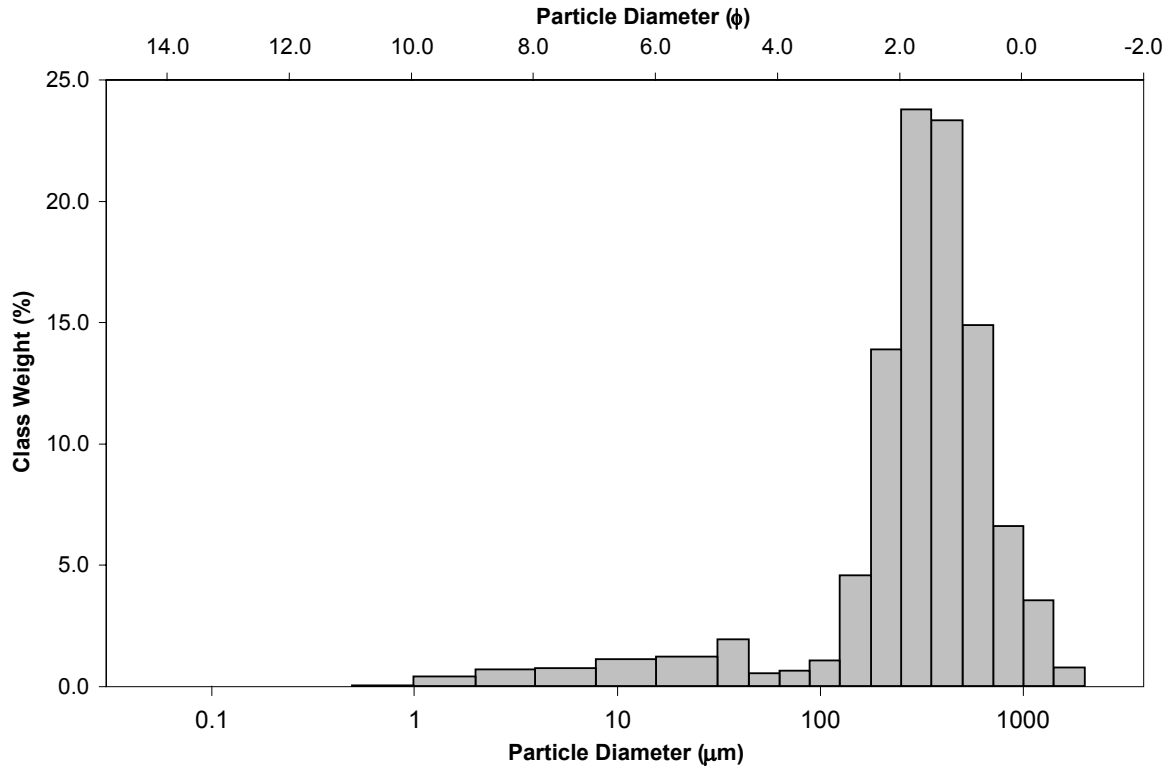
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	46.00	0.458
MEDIAN or D_{50}:	339.7	1.558
D_{90}:	727.8	4.442
(D_{90} / D_{10}):	15.82	9.690
(D_{90} - D_{10}):	681.8	3.984
(D_{75} / D_{25}):	2.262	2.176
(D_{75} - D_{25}):	278.8	1.178

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.8%
SAND:	89.5%	MEDIUM SAND:	45.3%
MUD:	10.5%	FINE SAND:	17.7%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.1%
FINE GRAVEL:	0.0%	FINE SILT:	1.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.3%
V COARSE SAND:	4.2%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	398.6	259.9	1.944	330.0	1.599	Medium Sand
SORTING (σ):	283.8	3.464	1.792	2.670	1.417	Poorly Sorted
SKEWNESS (Sk):	1.489	-2.152	2.152	-0.296	0.296	Fine Skewed
KURTOSIS (K):	6.498	8.039	8.039	2.183	2.183	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 37.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

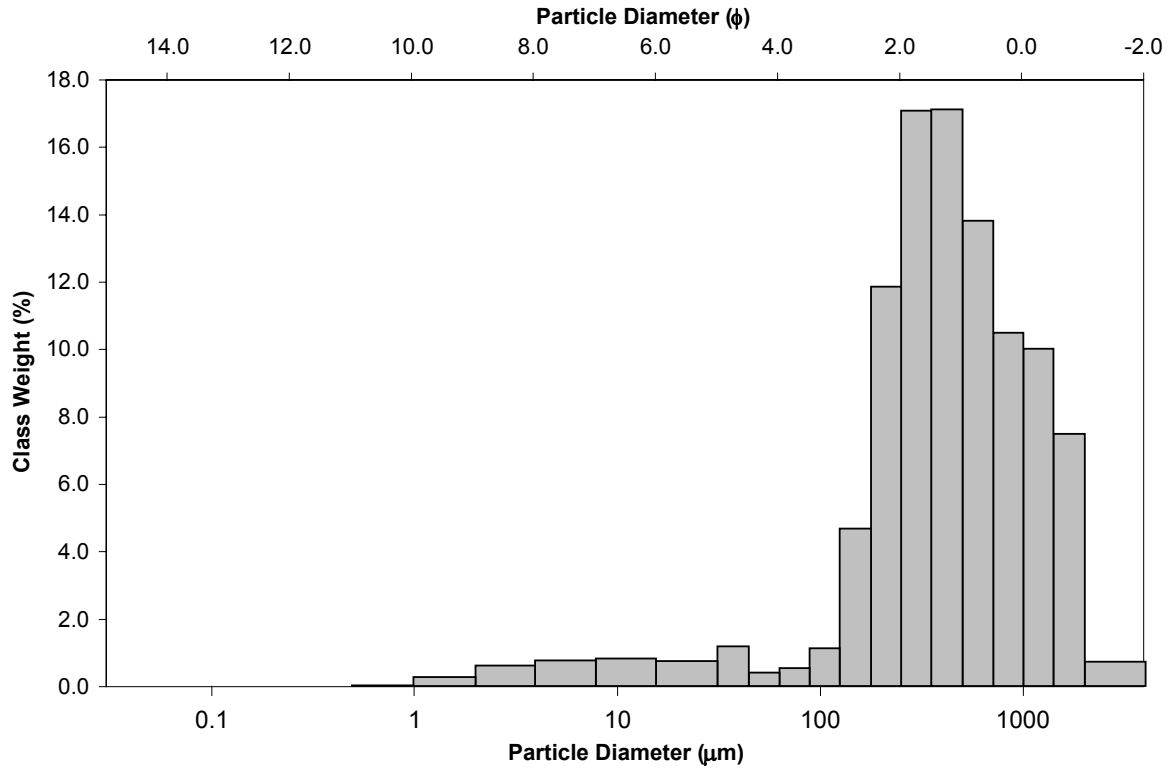
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	131.0	-0.427
MEDIAN or D_{50}:	420.3	1.251
D_{90}:	1344.8	2.932
(D_{90} / D_{10}):	10.26	-6.861
(D_{90} - D_{10}):	1213.8	3.360
(D_{75} / D_{25}):	3.204	6.037
(D_{75} - D_{25}):	545.9	1.680

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.4%	COARSE SAND:	23.5%
SAND:	90.9%	MEDIUM SAND:	33.0%
MUD:	7.8%	FINE SAND:	15.9%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.5%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.5%
V FINE GRAVEL:	1.4%	V FINE SILT:	1.2%
V COARSE SAND:	16.9%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	602.5	360.1	1.474	441.3	1.180	Medium Sand
SORTING (σ):	535.6	3.645	1.866	3.100	1.632	Poorly Sorted
SKEWNESS (Sk):	1.807	-1.862	1.862	-0.155	0.155	Fine Skewed
KURTOSIS (K):	7.240	7.597	7.597	1.612	1.612	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 42.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

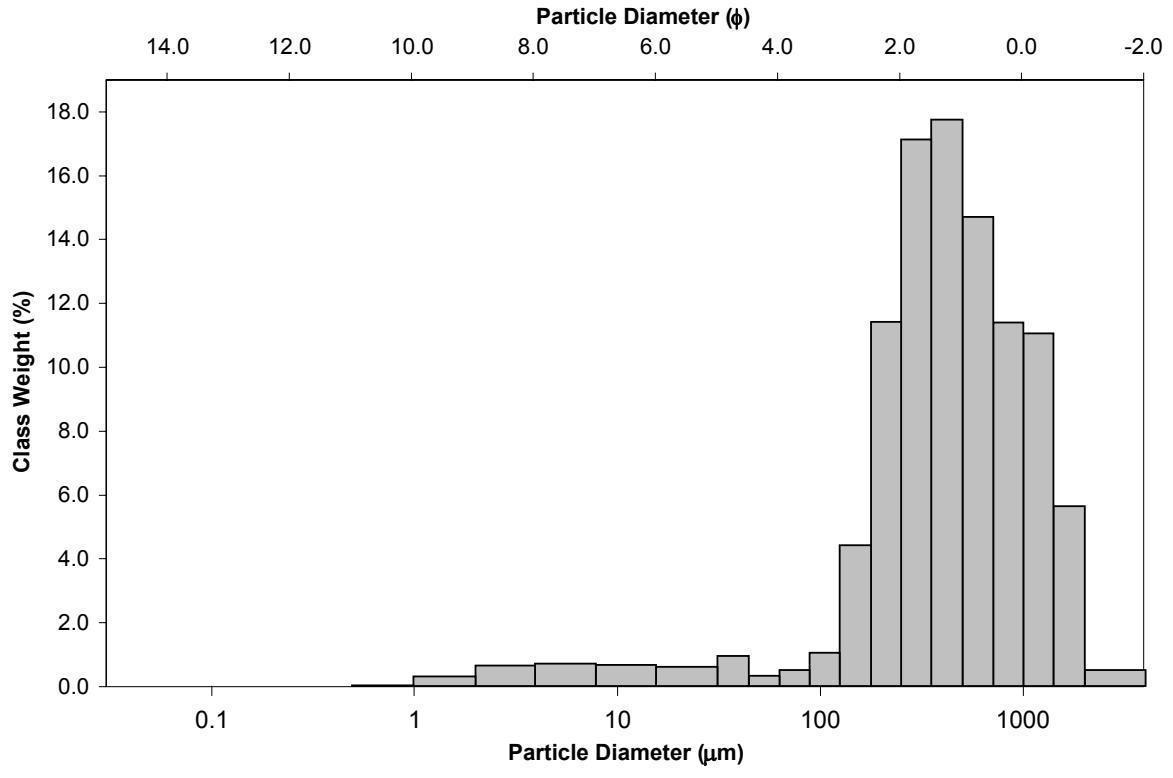
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	141.3	-0.330
MEDIAN or D_{50}:	428.9	1.221
D_{90}:	1257.4	2.824
(D_{90} / D_{10}):	8.902	-8.545
(D_{90} - D_{10}):	1116.2	3.154
(D_{75} / D_{25}):	3.041	5.466
(D_{75} - D_{25}):	523.2	1.604

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.0%	COARSE SAND:	25.3%
SAND:	92.1%	MEDIUM SAND:	33.8%
MUD:	7.0%	FINE SAND:	15.3%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.3%
FINE GRAVEL:	0.0%	FINE SILT:	1.4%
V FINE GRAVEL:	1.0%	V FINE SILT:	1.2%
V COARSE SAND:	16.1%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	586.9	365.3	1.453	443.0	1.175	Medium Sand
SORTING (σ):	490.5	3.524	1.817	2.929	1.550	Poorly Sorted
SKEWNESS (Sk):	1.772	-2.059	2.059	-0.176	0.176	Fine Skewed
KURTOSIS (K):	7.566	8.569	8.569	1.601	1.601	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 47.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Medium Sand

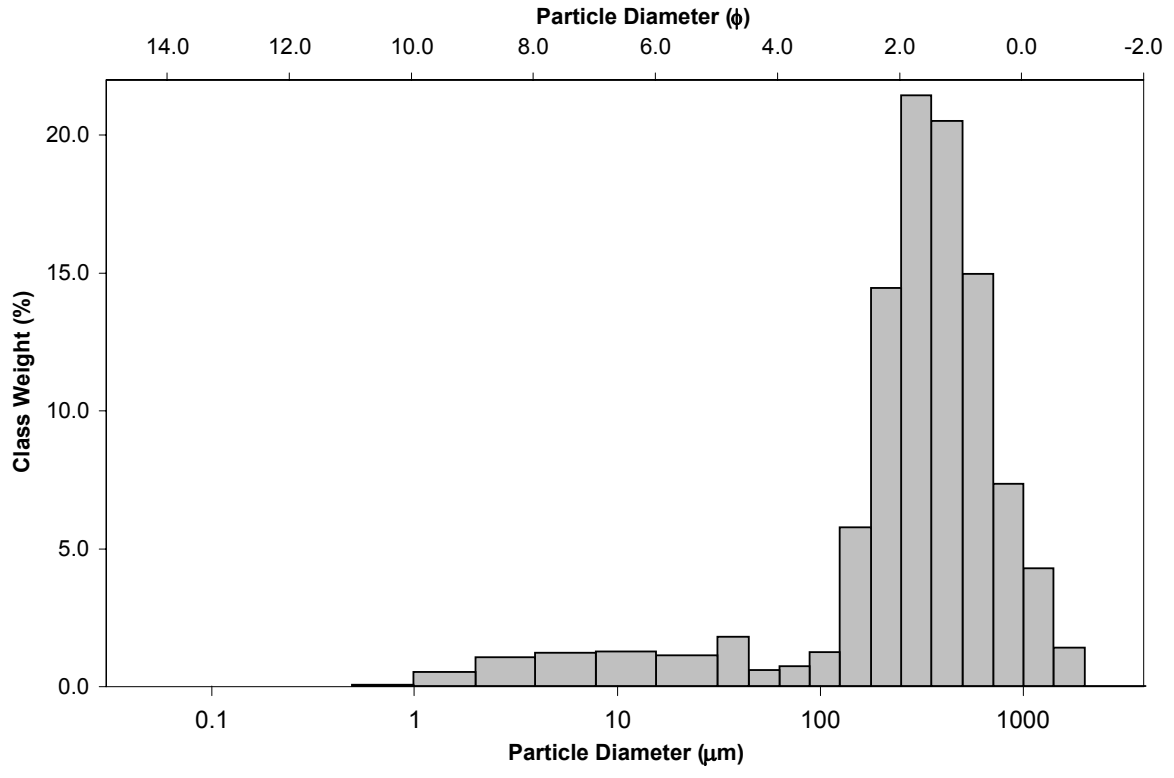
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	31.45	0.329
MEDIAN or D_{50}:	331.7	1.592
D_{90}:	796.0	4.991
(D_{90} / D_{10}):	25.31	15.16
(D_{90} - D_{10}):	764.5	4.662
(D_{75} / D_{25}):	2.573	2.451
(D_{75} - D_{25}):	318.7	1.363

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.3%
SAND:	87.8%	MEDIUM SAND:	39.9%
MUD:	12.2%	FINE SAND:	19.2%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.4%
FINE GRAVEL:	0.0%	FINE SILT:	2.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.0%
V COARSE SAND:	5.4%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	404.7	240.3	2.057	311.8	1.681	Medium Sand
SORTING (σ):	317.4	4.012	2.004	3.128	1.645	Poorly Sorted
SKEWNESS (Sk):	1.599	-1.923	1.923	-0.333	0.333	Very Fine Skewed
KURTOSIS (K):	6.900	6.583	6.583	2.171	2.171	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 52.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

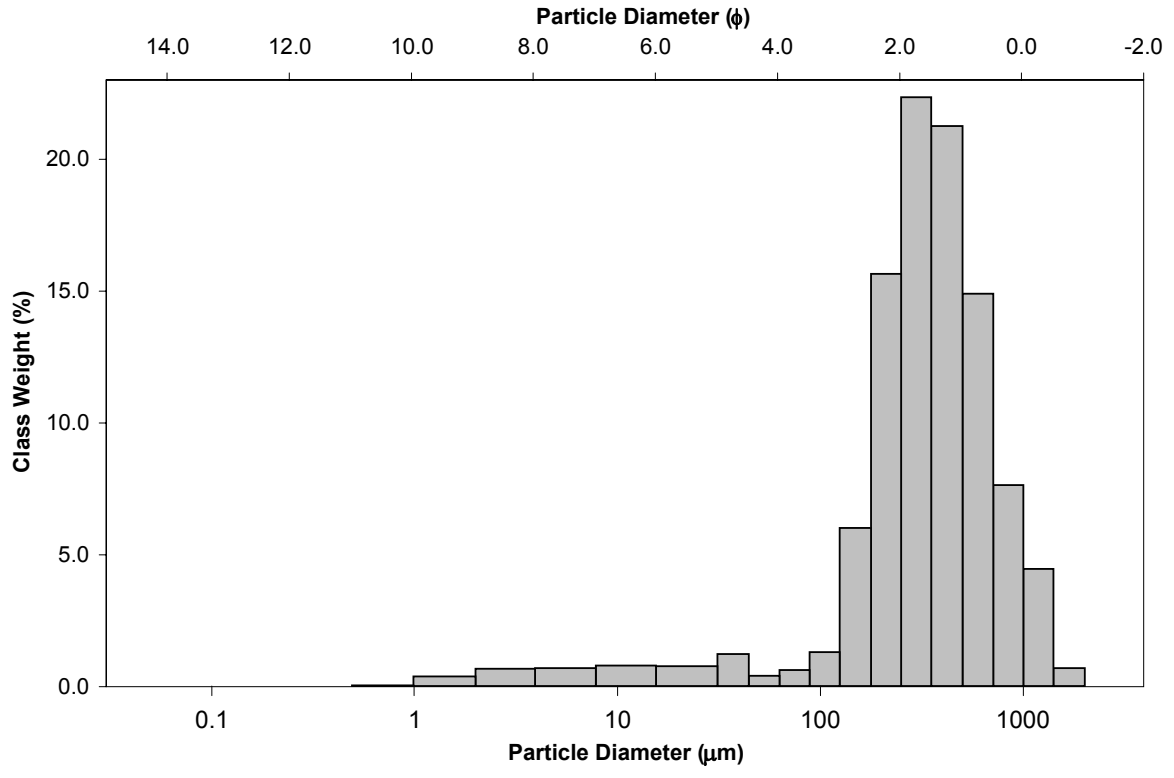
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	125.4	0.341
MEDIAN or D_{50}:	339.4	1.559
D_{90}:	789.4	2.996
(D_{90} / D_{10}):	6.297	8.781
(D_{90} - D_{10}):	664.0	2.655
(D_{75} / D_{25}):	2.394	2.346
(D_{75} - D_{25}):	304.5	1.259

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.9%
SAND:	91.9%	MEDIUM SAND:	42.2%
MUD:	8.1%	FINE SAND:	21.0%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.5%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.3%
V COARSE SAND:	5.0%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	411.4	276.1	1.857	339.6	1.558	Medium Sand
SORTING (σ):	291.9	3.281	1.714	2.597	1.377	Poorly Sorted
SKEWNESS (Sk):	1.426	-2.308	2.308	-0.240	0.240	Fine Skewed
KURTOSIS (K):	5.754	9.339	9.339	1.954	1.954	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 57.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

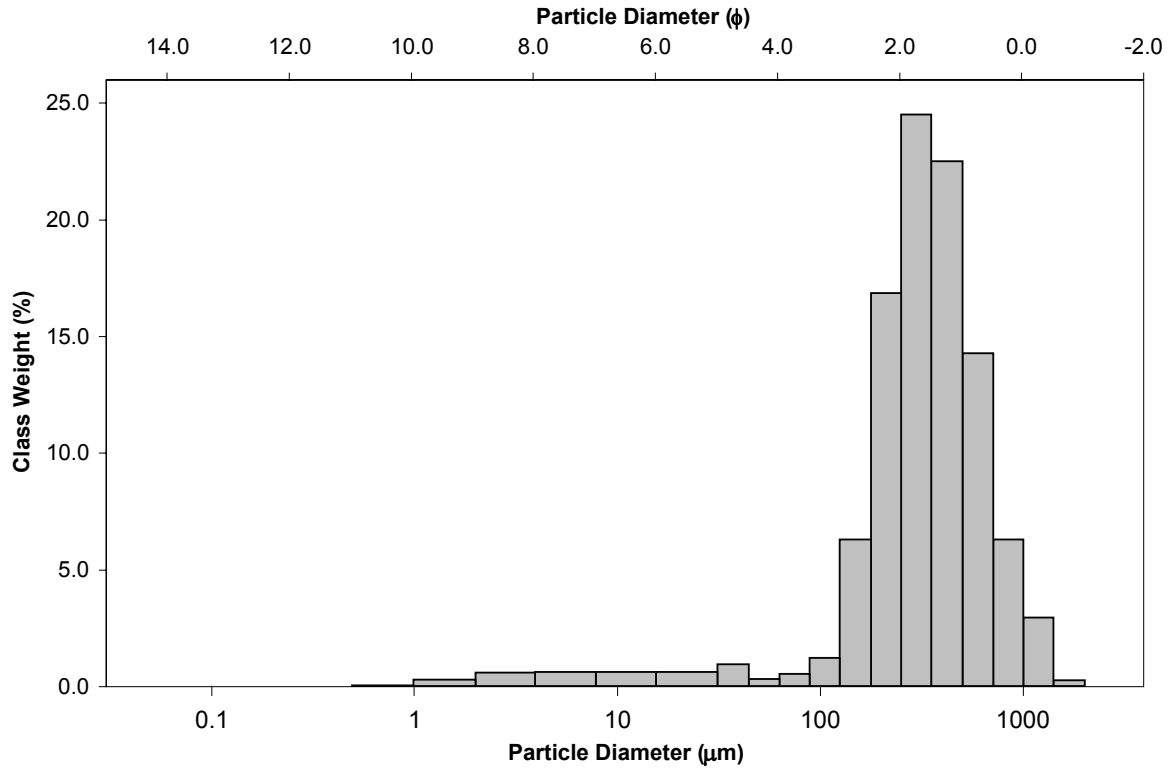
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	137.4	0.524
MEDIAN or D_{50}:	329.7	1.601
D_{90}:	695.4	2.863
(D_{90} / D_{10}):	5.061	5.464
(D_{90} - D_{10}):	558.0	2.339
(D_{75} / D_{25}):	2.204	2.097
(D_{75} - D_{25}):	265.8	1.140

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.2%
SAND:	93.4%	MEDIUM SAND:	45.8%
MUD:	6.6%	FINE SAND:	22.6%
		V FINE SAND:	1.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	1.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	3.1%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	388.7	278.0	1.847	330.5	1.597	Medium Sand
SORTING (σ):	254.1	2.948	1.560	2.303	1.204	Poorly Sorted
SKEWNESS (Sk):	1.420	-2.563	2.563	-0.215	0.215	Fine Skewed
KURTOSIS (K):	6.098	11.22	11.22	1.840	1.840	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 62.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

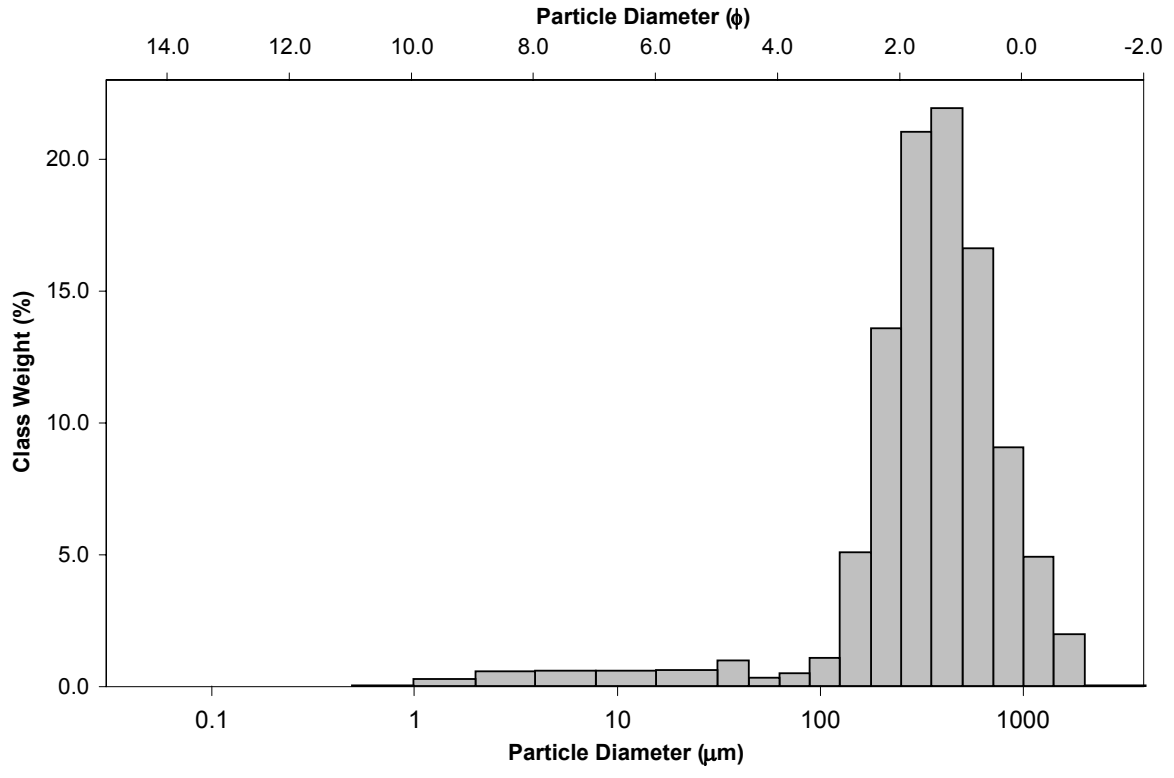
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	144.0	0.184
MEDIAN or D_{50}:	372.9	1.423
D_{90}:	880.5	2.796
(D_{90} / D_{10}):	6.114	15.23
(D_{90} - D_{10}):	736.5	2.612
(D_{75} / D_{25}):	2.390	2.596
(D_{75} - D_{25}):	337.0	1.257

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	25.1%
SAND:	93.5%	MEDIUM SAND:	41.9%
MUD:	6.4%	FINE SAND:	18.2%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	1.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	6.7%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	457.5	315.5	1.664	368.9	1.439	Medium Sand
SORTING (σ):	330.5	3.070	1.618	2.420	1.275	Poorly Sorted
SKEWNESS (Sk):	1.661	-2.397	2.397	-0.211	0.211	Fine Skewed
KURTOSIS (K):	7.095	10.55	10.55	1.736	1.736	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 67.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

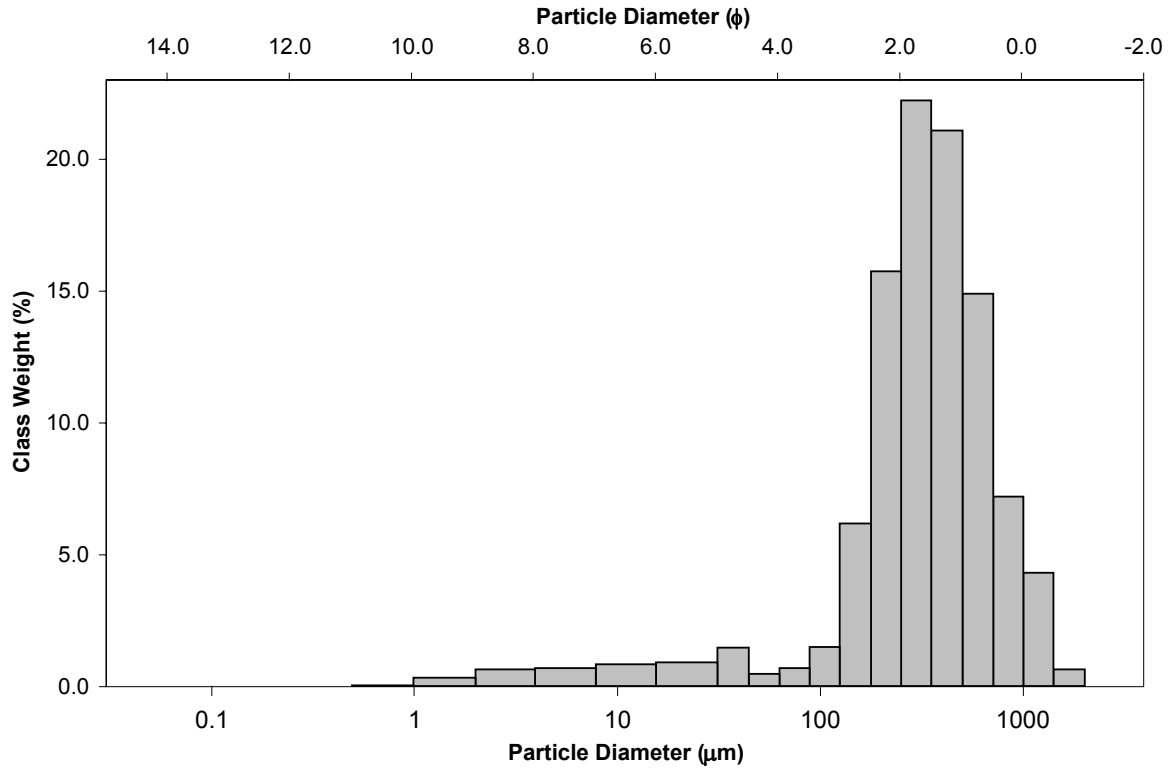
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	107.7	0.375
MEDIAN or D_{50}:	334.9	1.578
D_{90}:	771.2	3.215
(D_{90} / D_{10}):	7.163	8.578
(D_{90} - D_{10}):	663.5	2.841
(D_{75} / D_{25}):	2.408	2.326
(D_{75} - D_{25}):	301.3	1.268

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.5%
SAND:	91.5%	MEDIUM SAND:	41.9%
MUD:	8.5%	FINE SAND:	21.2%
		V FINE SAND:	2.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.2%
V COARSE SAND:	4.8%	CLAY:	0.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	405.0	271.9	1.879	331.9	1.591	Medium Sand
SORTING (σ):	289.1	3.237	1.695	2.585	1.370	Poorly Sorted
SKEWNESS (Sk):	1.434	-2.223	2.223	-0.245	0.245	Fine Skewed
KURTOSIS (K):	5.816	8.939	8.939	1.906	1.906	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 72.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

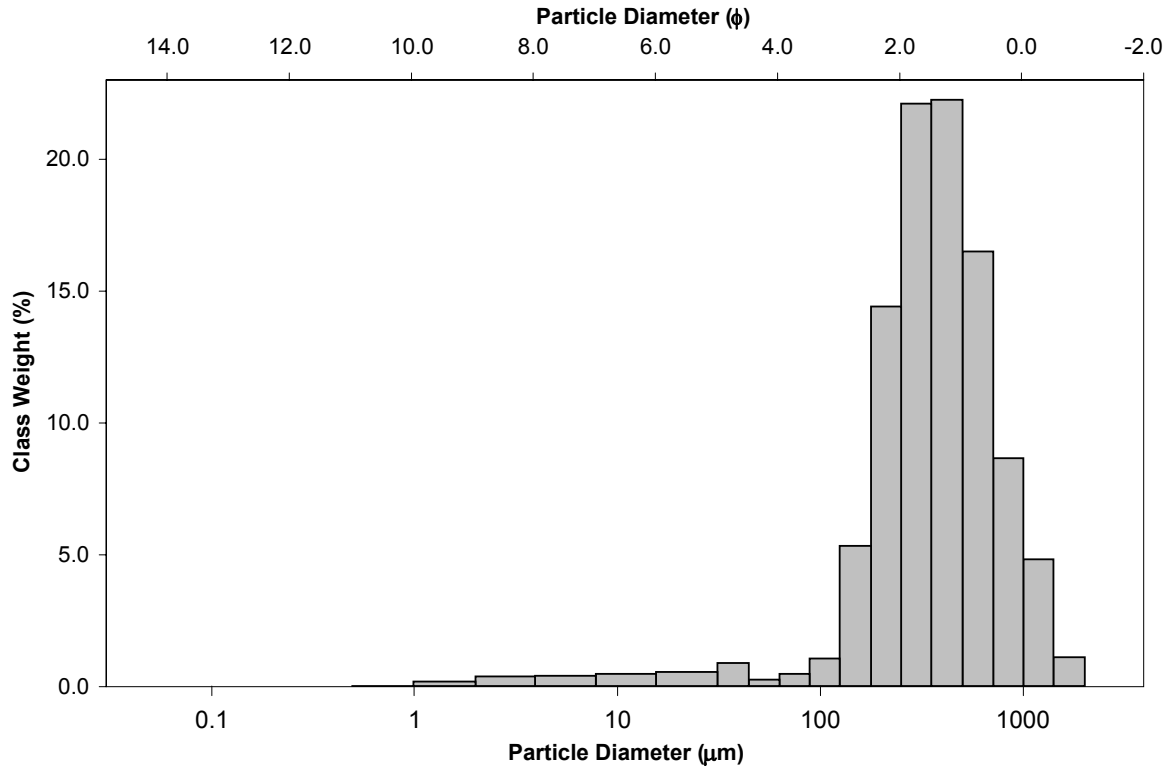
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	157.9	0.246
MEDIAN or D_{50}:	367.6	1.444
D_{90}:	843.0	2.663
(D_{90} / D_{10}):	5.338	10.81
(D_{90} - D_{10}):	685.1	2.416
(D_{75} / D_{25}):	2.300	2.453
(D_{75} - D_{25}):	318.6	1.202

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	24.8%
SAND:	95.0%	MEDIUM SAND:	43.6%
MUD:	5.0%	FINE SAND:	19.3%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.9%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	5.8%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	445.8	326.5	1.615	366.9	1.447	Medium Sand
SORTING (σ):	301.0	2.696	1.431	2.093	1.065	Poorly Sorted
SKEWNESS (Sk):	1.497	-2.491	2.491	-0.126	0.126	Fine Skewed
KURTOSIS (K):	5.942	12.21	12.21	1.386	1.386	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 77.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

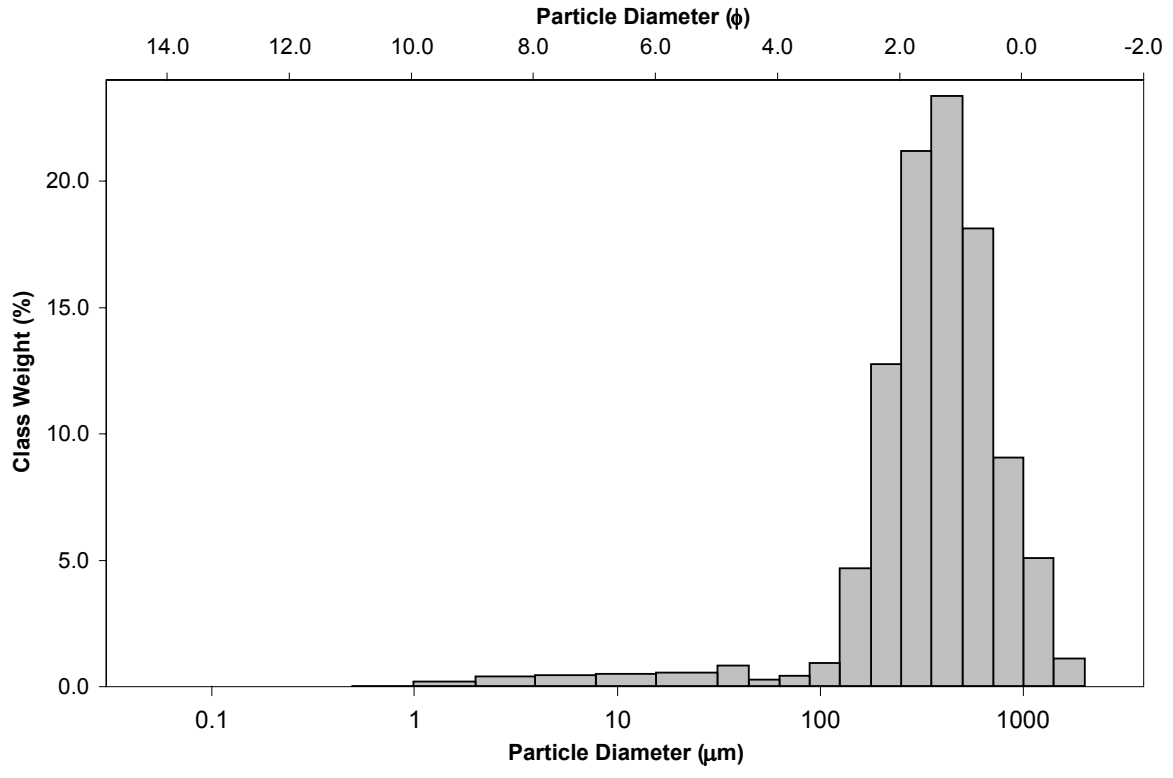
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	164.2	0.225
MEDIAN or D_{50}:	385.3	1.376
D_{90}:	855.8	2.607
(D_{90} / D_{10}):	5.213	11.60
(D_{90} - D_{10}):	691.6	2.382
(D_{75} / D_{25}):	2.269	2.513
(D_{75} - D_{25}):	325.4	1.182

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	26.8%
SAND:	94.9%	MEDIUM SAND:	43.8%
MUD:	5.1%	FINE SAND:	17.1%
		V FINE SAND:	1.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.9%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	6.0%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	458.1	336.0	1.573	378.7	1.401	Medium Sand
SORTING (σ):	300.9	2.729	1.448	2.119	1.083	Poorly Sorted
SKEWNESS (Sk):	1.409	-2.570	2.570	-0.172	0.172	Fine Skewed
KURTOSIS (K):	5.680	12.37	12.37	1.466	1.466	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 82.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

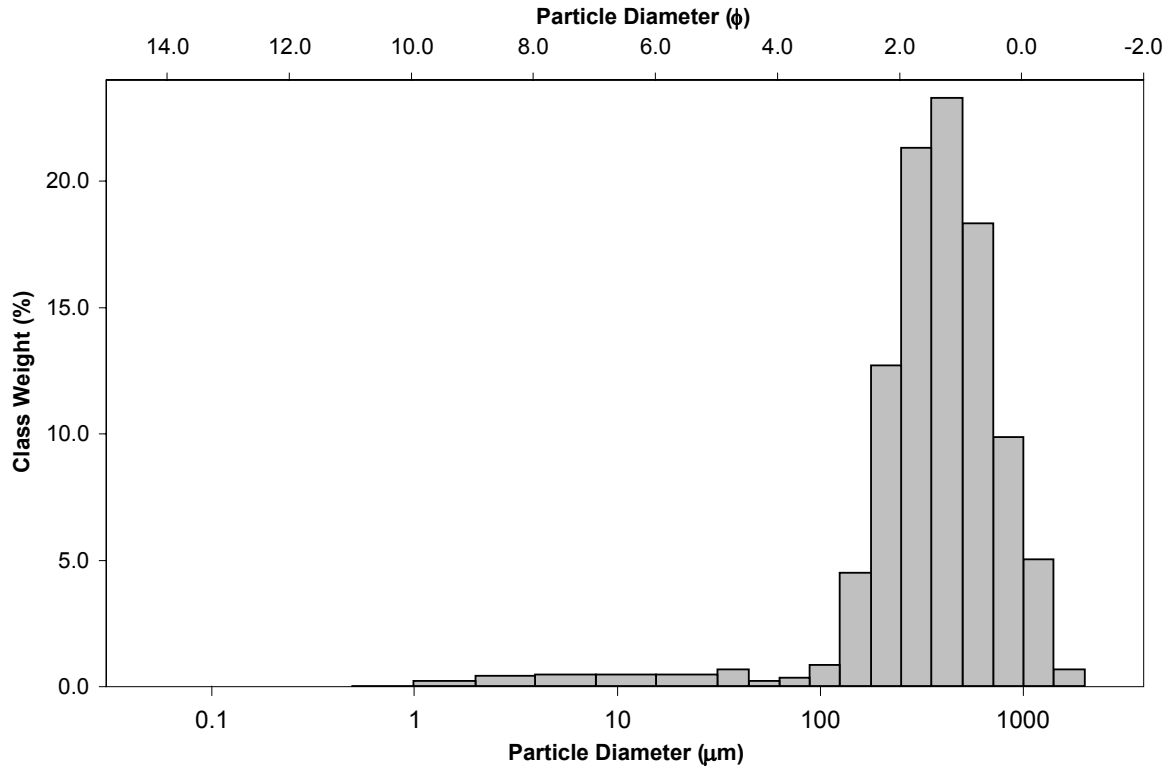
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	171.0	0.228
MEDIAN or D_{50}:	388.4	1.365
D_{90}:	853.6	2.548
(D_{90} / D_{10}):	4.992	11.16
(D_{90} - D_{10}):	682.6	2.320
(D_{75} / D_{25}):	2.266	2.537
(D_{75} - D_{25}):	328.1	1.180

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	27.8%
SAND:	95.2%	MEDIUM SAND:	43.8%
MUD:	4.8%	FINE SAND:	16.8%
		V FINE SAND:	1.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.9%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.8%
V COARSE SAND:	5.6%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	458.5	338.8	1.562	382.7	1.386	Medium Sand
SORTING (σ):	291.2	2.727	1.447	2.020	1.014	Poorly Sorted
SKEWNESS (Sk):	1.272	-2.686	2.686	-0.143	0.143	Fine Skewed
KURTOSIS (K):	5.161	13.00	13.00	1.318	1.318	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 87.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Very Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Medium Sand

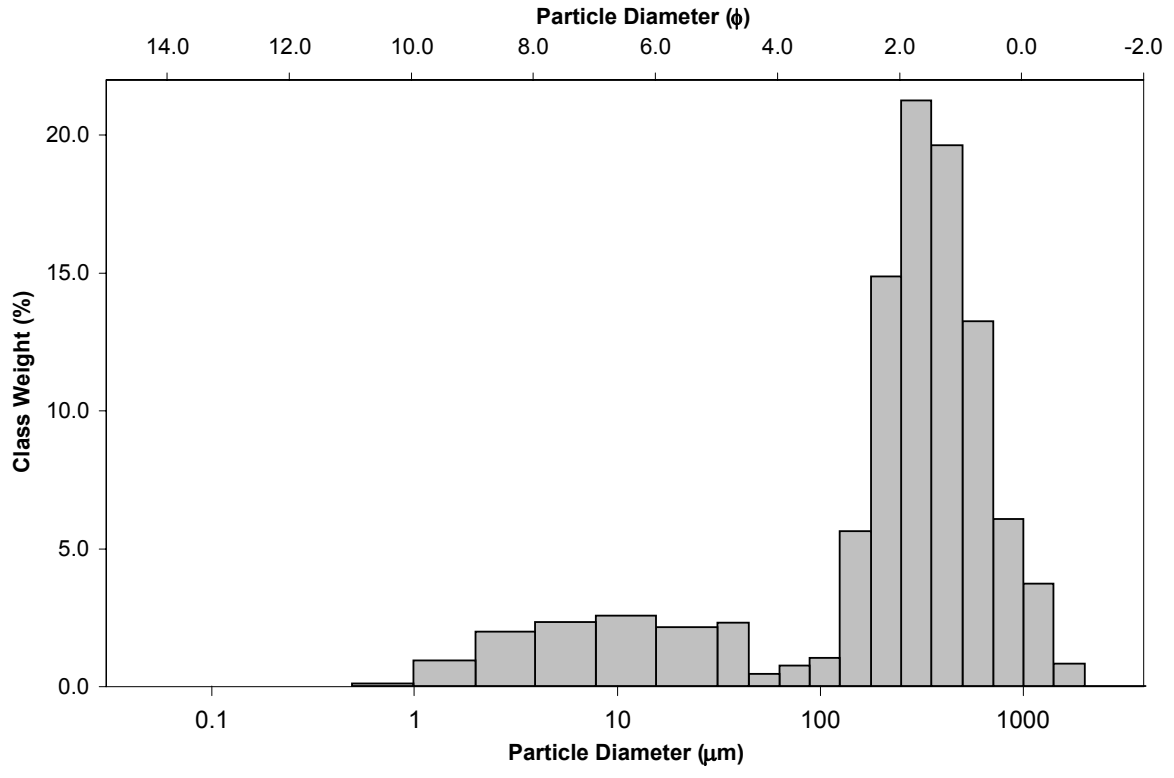
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	8.194	0.512
MEDIAN or D_{50}:	293.5	1.768
D_{90}:	701.3	6.931
(D_{90} / D_{10}):	85.59	13.54
(D_{90} - D_{10}):	693.1	6.419
(D_{75} / D_{25}):	3.150	2.518
(D_{75} - D_{25}):	320.6	1.656

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	17.6%
SAND:	79.2%	MEDIUM SAND:	37.2%
MUD:	20.8%	FINE SAND:	18.6%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	4.7%
FINE GRAVEL:	0.0%	FINE SILT:	4.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.6%
V COARSE SAND:	4.1%	CLAY:	1.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	349.4	166.2	2.589	153.7	2.702	Fine Sand
SORTING (σ):	301.8	5.373	2.426	5.353	2.420	Very Poorly Sorted
SKEWNESS (Sk):	1.473	-1.379	1.379	-0.580	0.580	Very Fine Skewed
KURTOSIS (K):	6.188	3.866	3.866	1.988	1.988	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 92.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

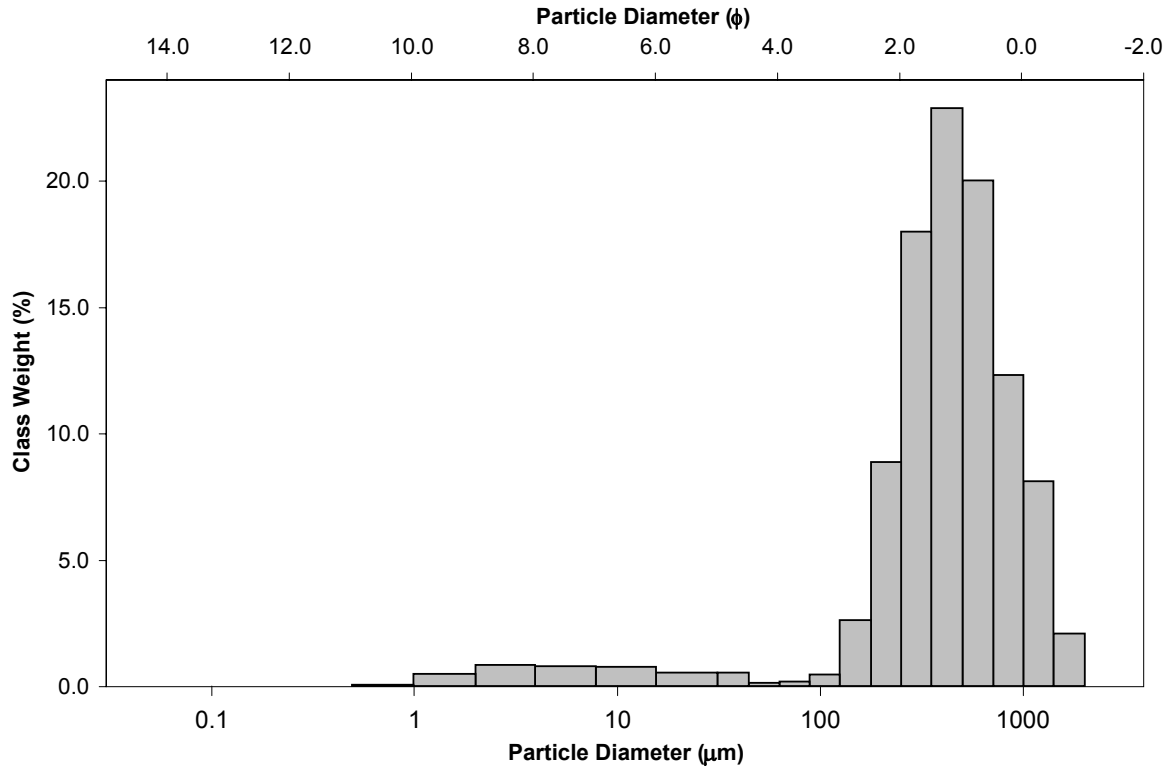
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	163.5	0.007
MEDIAN or D_{50}:	435.8	1.198
D_{90}:	995.4	2.612
(D_{90} / D_{10}):	6.087	394.8
(D_{90} - D_{10}):	831.9	2.606
(D_{75} / D_{25}):	2.378	3.151
(D_{75} - D_{25}):	387.4	1.250

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	31.4%
SAND:	92.6%	MEDIUM SAND:	39.7%
MUD:	7.4%	FINE SAND:	11.1%
		V FINE SAND:	0.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.5%
FINE GRAVEL:	0.0%	FINE SILT:	1.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.6%
V COARSE SAND:	9.8%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	519.1	342.3	1.547	431.4	1.213	Medium Sand
SORTING (σ):	349.3	3.602	1.849	2.849	1.510	Poorly Sorted
SKEWNESS (Sk):	1.128	-2.522	2.522	-0.290	0.290	Fine Skewed
KURTOSIS (K):	4.437	9.924	9.924	2.228	2.228	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 97.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Fine Silty Medium Sand

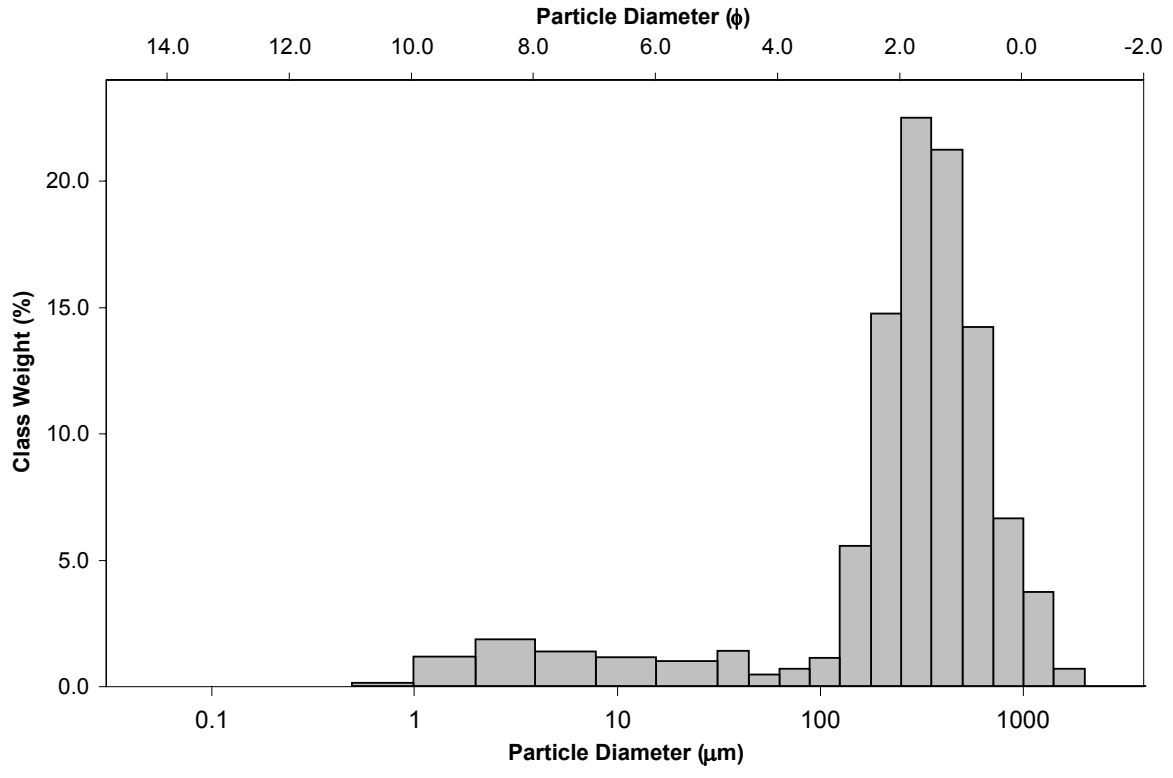
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	12.41	0.469
MEDIAN or D_{50}:	319.1	1.648
D_{90}:	722.5	6.333
(D_{90} / D_{10}):	58.24	13.51
(D_{90} - D_{10}):	710.1	5.864
(D_{75} / D_{25}):	2.523	2.297
(D_{75} - D_{25}):	295.8	1.335

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	19.7%
SAND:	85.7%	MEDIUM SAND:	41.1%
MUD:	14.3%	FINE SAND:	19.0%
		V FINE SAND:	1.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.2%
FINE GRAVEL:	0.0%	FINE SILT:	2.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.5%
V COARSE SAND:	4.1%	CLAY:	2.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	377.5	204.8	2.287	288.2	1.795	Medium Sand
SORTING (σ):	292.5	4.870	2.284	3.538	1.823	Poorly Sorted
SKEWNESS (Sk):	1.414	-1.861	1.861	-0.402	0.402	Very Fine Skewed
KURTOSIS (K):	6.078	5.718	5.718	2.517	2.517	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 102.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Medium Sand

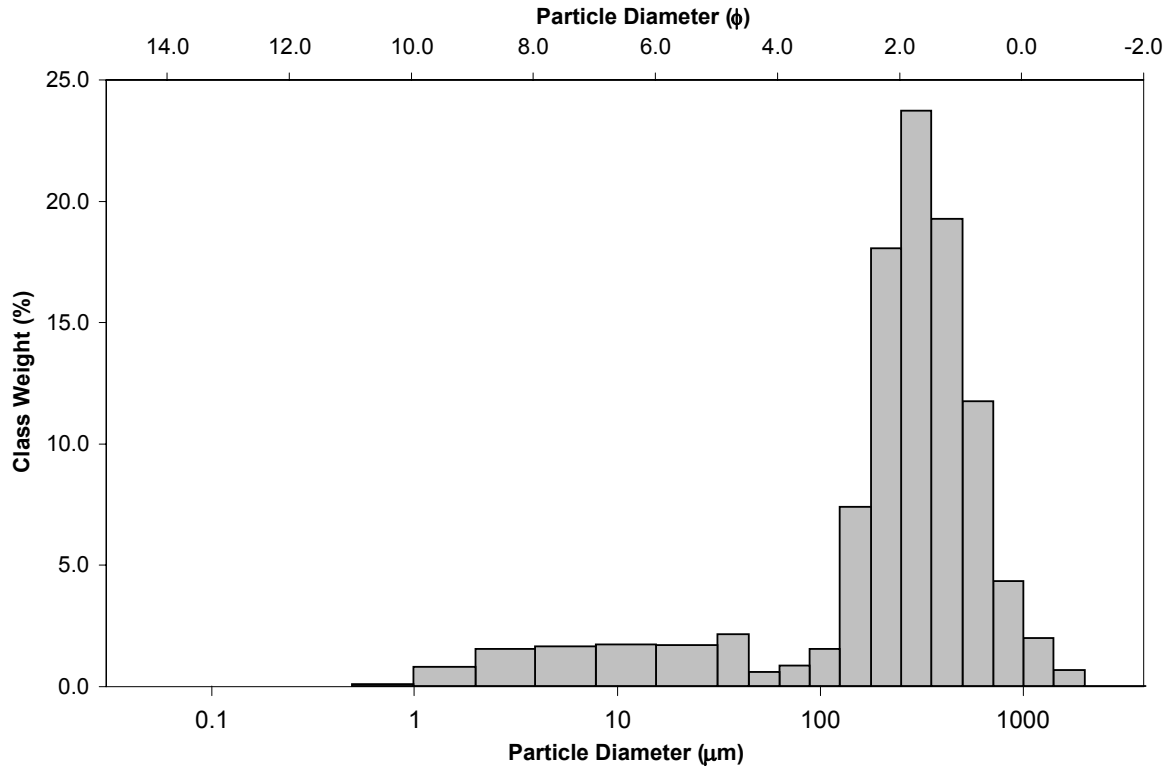
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	13.26	0.655
MEDIAN or D_{50}:	281.5	1.829
D_{90}:	635.1	6.237
(D_{90} / D_{10}):	47.90	9.523
(D_{90} - D_{10}):	621.8	5.582
(D_{75} / D_{25}):	2.525	2.108
(D_{75} - D_{25}):	261.7	1.336

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	15.1%
SAND:	83.5%	MEDIUM SAND:	40.0%
MUD:	16.5%	FINE SAND:	23.7%
		V FINE SAND:	2.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.3%
FINE GRAVEL:	0.0%	FINE SILT:	3.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.8%
V COARSE SAND:	2.5%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	328.4	180.7	2.468	189.8	2.397	Fine Sand
SORTING (σ):	264.3	4.507	2.172	4.043	2.015	Very Poorly Sorted
SKEWNESS (Sk):	1.765	-1.695	1.695	-0.541	0.541	Very Fine Skewed
KURTOSIS (K):	8.851	5.197	5.197	2.305	2.305	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 107.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

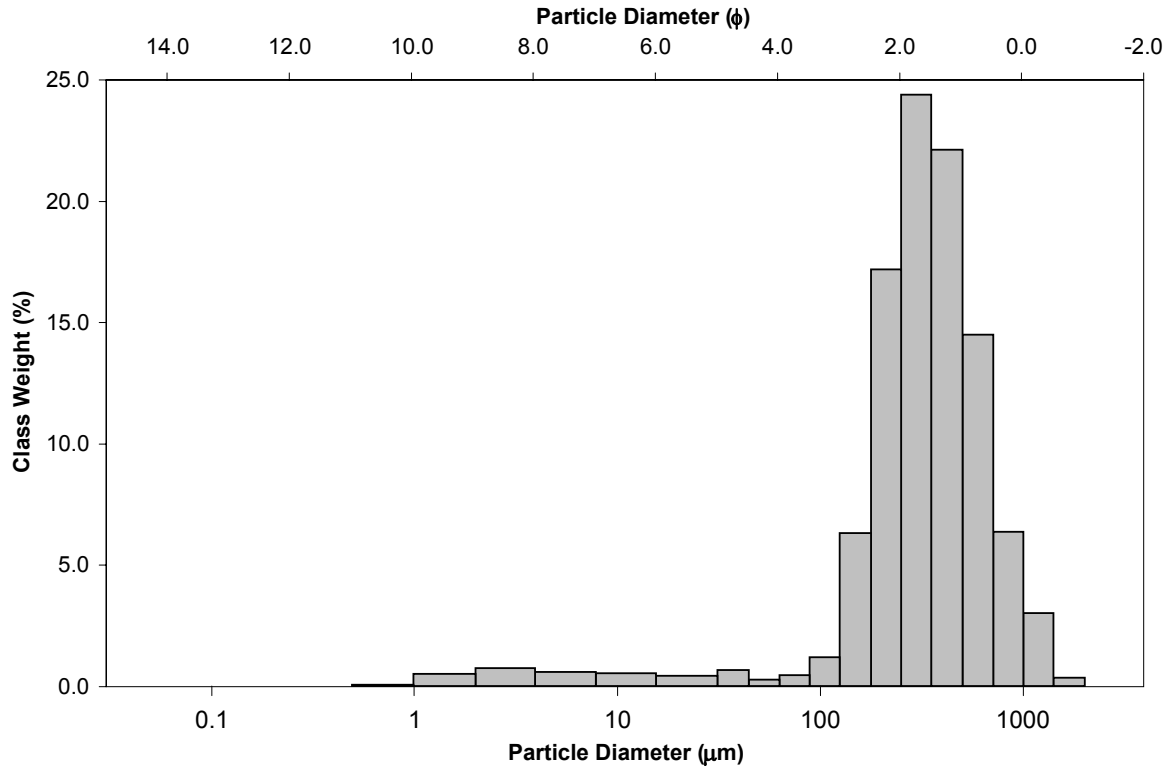
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	138.5	0.516
MEDIAN or D_{50}:	329.5	1.601
D_{90}:	699.2	2.852
(D_{90} / D_{10}):	5.048	5.525
(D_{90} - D_{10}):	560.7	2.336
(D_{75} / D_{25}):	2.218	2.115
(D_{75} - D_{25}):	268.8	1.149

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.4%
SAND:	93.5%	MEDIUM SAND:	45.3%
MUD:	6.5%	FINE SAND:	22.9%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.1%
FINE GRAVEL:	0.0%	FINE SILT:	1.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.4%
V COARSE SAND:	3.2%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	390.7	273.5	1.871	331.5	1.593	Medium Sand
SORTING (σ):	258.1	3.160	1.660	2.419	1.274	Poorly Sorted
SKEWNESS (Sk):	1.457	-2.676	2.676	-0.230	0.230	Fine Skewed
KURTOSIS (K):	6.289	11.49	11.49	1.986	1.986	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 112.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Moderately Sorted Medium Sand

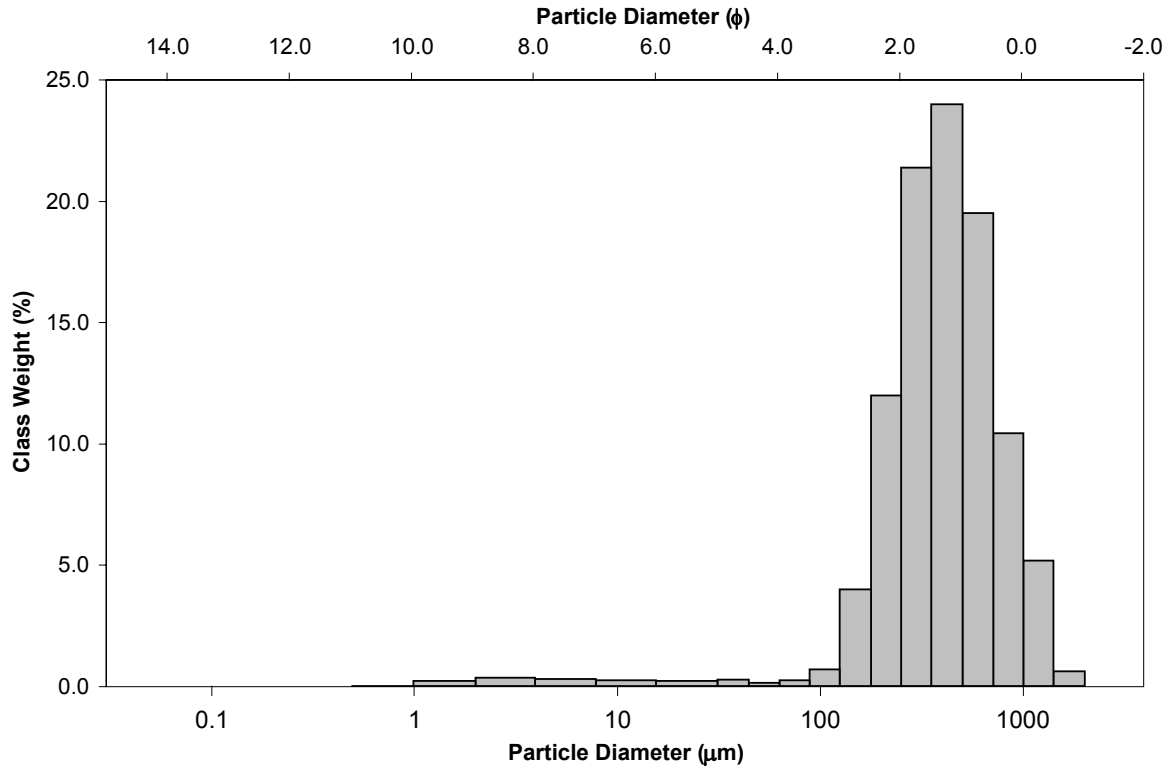
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	188.3	0.209
MEDIAN or D_{50}:	403.9	1.308
D_{90}:	865.3	2.409
(D_{90} / D_{10}):	4.596	11.54
(D_{90} - D_{10}):	677.1	2.200
(D_{75} / D_{25}):	2.210	2.567
(D_{75} - D_{25}):	330.0	1.144

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	29.7%
SAND:	97.0%	MEDIUM SAND:	44.9%
MUD:	3.0%	FINE SAND:	15.8%
		V FINE SAND:	0.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	5.7%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	474.6	367.7	1.443	400.5	1.320	Medium Sand
SORTING (σ):	284.9	2.471	1.305	1.814	0.859	Moderately Sorted
SKEWNESS (Sk):	1.262	-3.056	3.056	-0.042	0.042	Symmetrical
KURTOSIS (K):	5.063	17.27	17.27	1.050	1.050	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 117.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

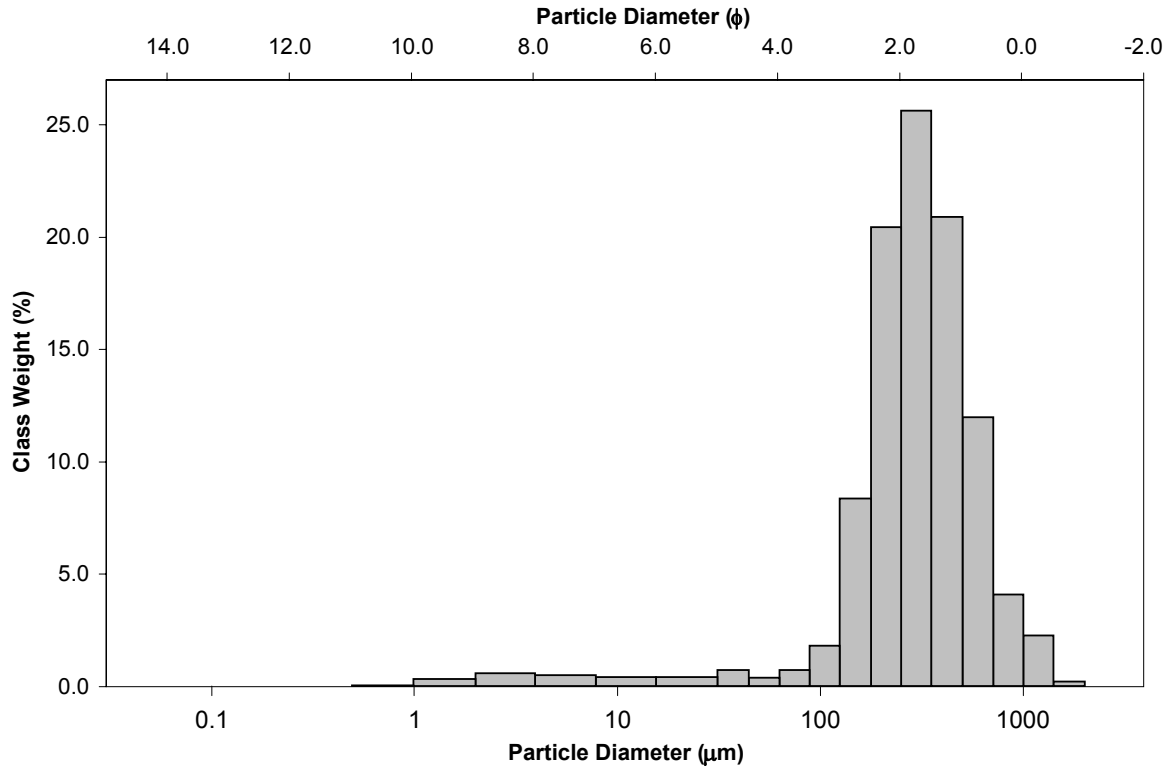
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	136.0	0.648
MEDIAN or D_{50}:	302.3	1.726
D_{90}:	638.0	2.878
(D_{90} / D_{10}):	4.691	4.439
(D_{90} - D_{10}):	502.0	2.230
(D_{75} / D_{25}):	2.167	1.958
(D_{75} - D_{25}):	240.3	1.116

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	15.9%
SAND:	94.5%	MEDIUM SAND:	45.5%
MUD:	5.5%	FINE SAND:	28.2%
		V FINE SAND:	2.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	1.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.1%
V COARSE SAND:	2.4%	CLAY:	0.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	357.1	262.0	1.932	304.8	1.714	Medium Sand
SORTING (σ):	232.7	2.798	1.484	2.075	1.053	Poorly Sorted
SKEWNESS (Sk):	1.672	-2.744	2.744	-0.162	0.162	Fine Skewed
KURTOSIS (K):	7.499	12.92	12.92	1.577	1.577	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 122.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Moderately Sorted Medium Sand

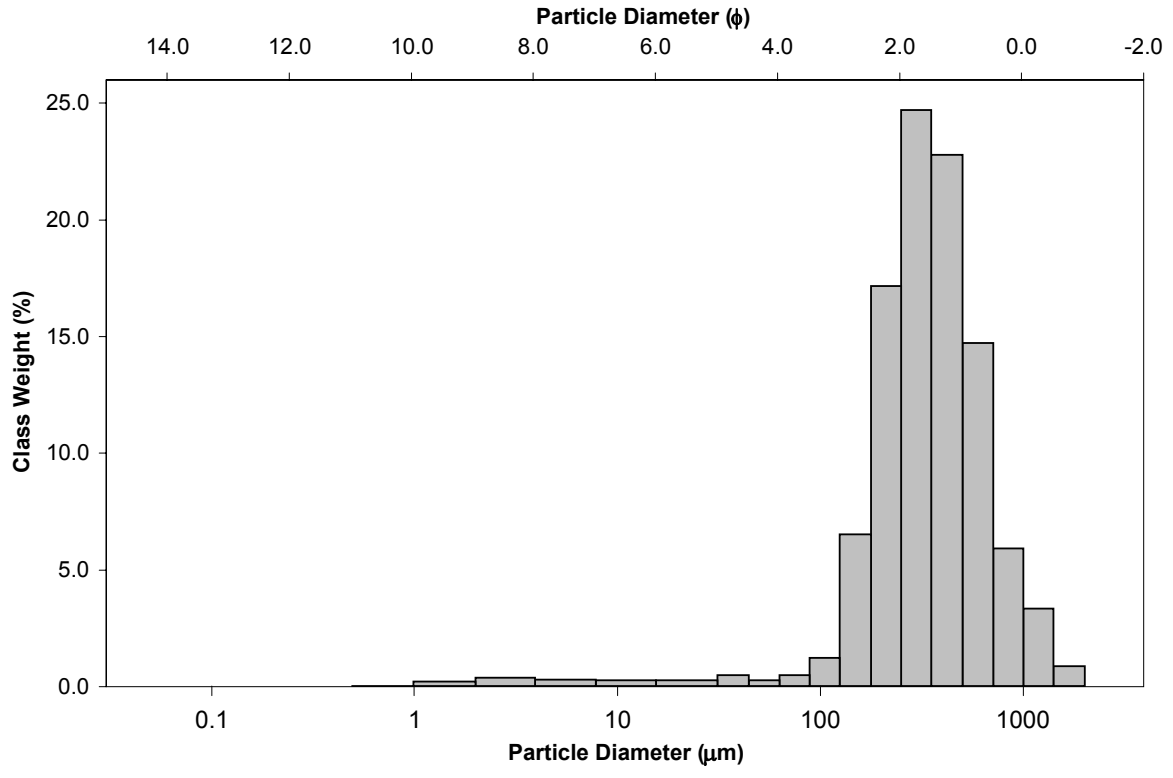
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	162.2	0.498
MEDIAN or D_{50}:	339.1	1.560
D_{90}:	708.1	2.624
(D_{90} / D_{10}):	4.366	5.270
(D_{90} - D_{10}):	545.9	2.126
(D_{75} / D_{25}):	2.136	2.085
(D_{75} - D_{25}):	264.2	1.095

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.5%
SAND:	96.6%	MEDIUM SAND:	46.9%
MUD:	3.4%	FINE SAND:	23.4%
		V FINE SAND:	1.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.5%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.5%
FINE GRAVEL:	0.0%	FINE SILT:	0.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.7%
V COARSE SAND:	4.1%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	409.9	313.8	1.672	342.8	1.545	Medium Sand
SORTING (σ):	269.7	2.461	1.299	1.827	0.869	Moderately Sorted
SKEWNESS (Sk):	1.821	-2.794	2.794	0.011	-0.011	Symmetrical
KURTOSIS (K):	7.755	15.71	15.71	1.119	1.119	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P2 127.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

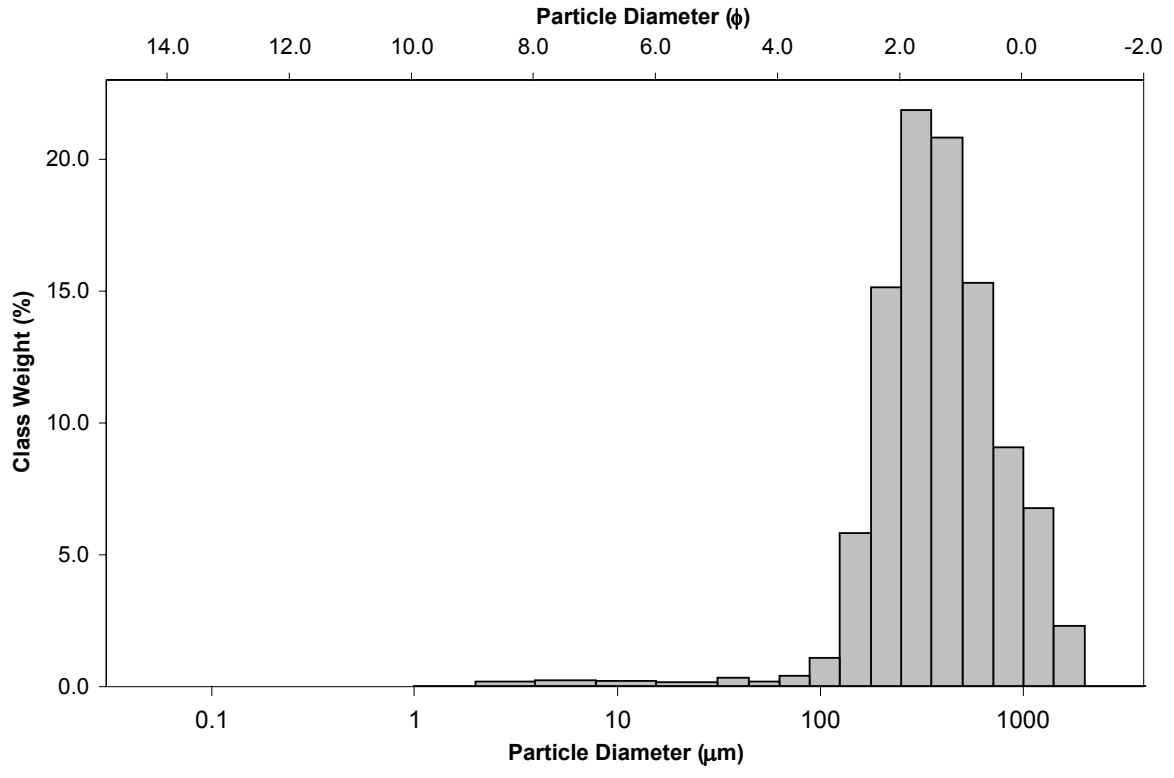
	μm	ϕ
MODE 1:	300.0	1.757
MODE 2:		
MODE 3:		
D_{10}:	179.9	0.056
MEDIAN or D_{50}:	378.0	1.403
D_{90}:	961.6	2.474
(D_{90} / D_{10}):	5.344	43.82
(D_{90} - D_{10}):	781.7	2.418
(D_{75} / D_{25}):	2.389	2.727
(D_{75} - D_{25}):	351.1	1.256

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	24.3%
SAND:	98.0%	MEDIUM SAND:	42.4%
MUD:	2.0%	FINE SAND:	20.8%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.3%
V COARSE SAND:	9.0%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	486.1	374.1	1.418	390.7	1.356	Medium Sand
SORTING (σ):	342.2	2.228	1.156	1.933	0.951	Moderately Sorted
SKEWNESS (Sk):	1.651	-1.841	1.841	0.075	-0.075	Symmetrical
KURTOSIS (K):	6.195	12.05	12.05	1.033	1.033	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 2.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

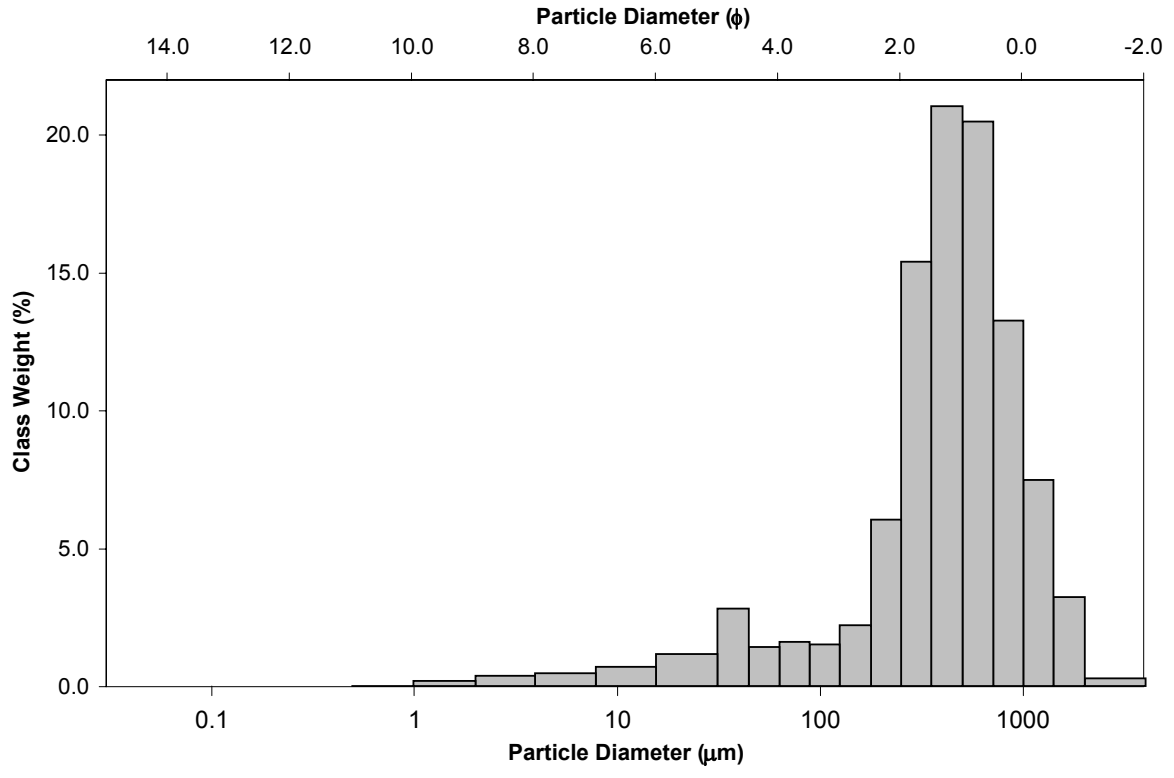
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	65.62	-0.064
MEDIAN or D_{50}:	449.4	1.154
D_{90}:	1045.6	3.930
(D_{90} / D_{10}):	15.93	-61.081
(D_{90} - D_{10}):	980.0	3.994
(D_{75} / D_{25}):	2.515	3.517
(D_{75} - D_{25}):	417.6	1.331

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.6%	COARSE SAND:	32.8%
SAND:	89.7%	MEDIUM SAND:	35.5%
MUD:	9.8%	FINE SAND:	8.0%
		V FINE SAND:	3.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	4.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	0.6%	V FINE SILT:	0.7%
V COARSE SAND:	10.4%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	541.6	349.7	1.516	419.4	1.254	Medium Sand
SORTING (σ):	418.7	3.311	1.727	2.669	1.416	Poorly Sorted
SKEWNESS (Sk):	1.873	-1.894	1.894	-0.293	0.293	Fine Skewed
KURTOSIS (K):	9.473	7.375	7.375	1.754	1.754	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 7.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

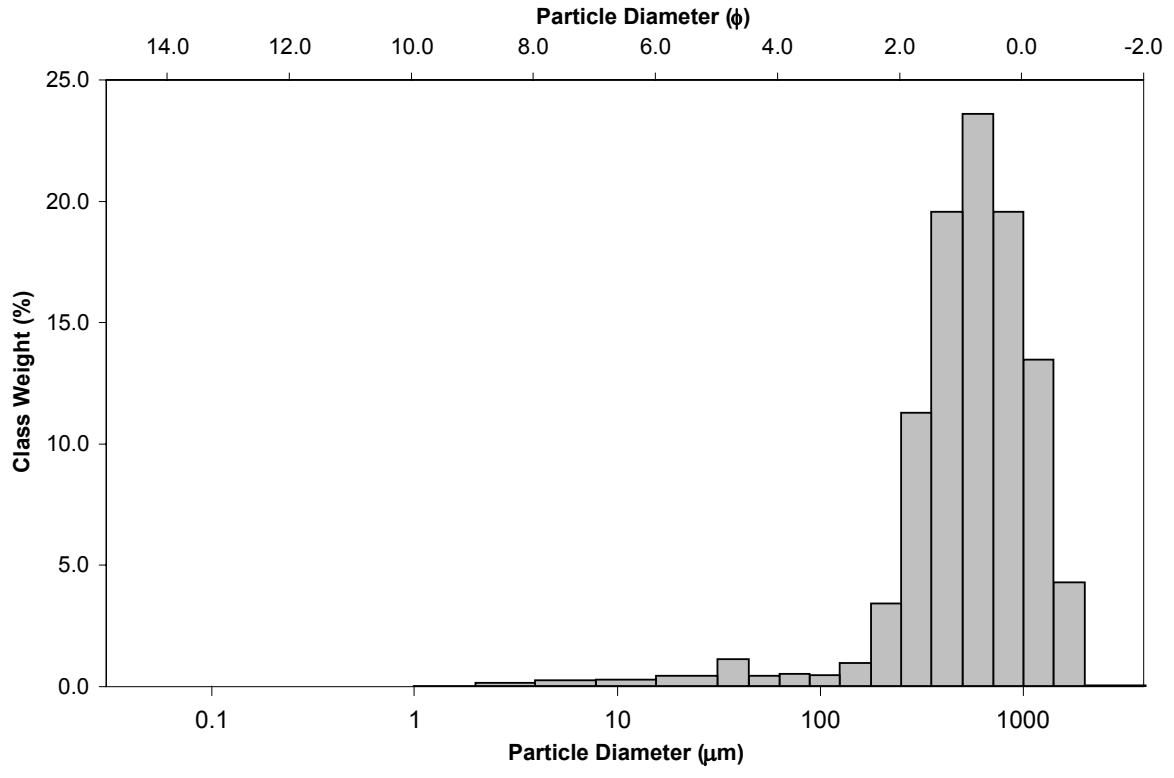
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	257.8	-0.283
MEDIAN or D_{50}:	582.4	0.780
D_{90}:	1217.0	1.956
(D_{90} / D_{10}):	4.720	-6.902
(D_{90} - D_{10}):	959.2	2.239
(D_{75} / D_{25}):	2.278	7.167
(D_{75} - D_{25}):	490.9	1.188

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	42.7%
SAND:	96.2%	MEDIUM SAND:	30.7%
MUD:	3.7%	FINE SAND:	4.3%
		V FINE SAND:	1.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.6%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.3%
V COARSE SAND:	17.5%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	667.8	518.2	0.948	573.3	0.803	Coarse Sand
SORTING (σ):	387.2	2.392	1.258	1.914	0.937	Moderately Sorted
SKEWNESS (Sk):	0.926	-2.472	2.472	-0.141	0.141	Fine Skewed
KURTOSIS (K):	4.163	12.41	12.41	1.140	1.140	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 12.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

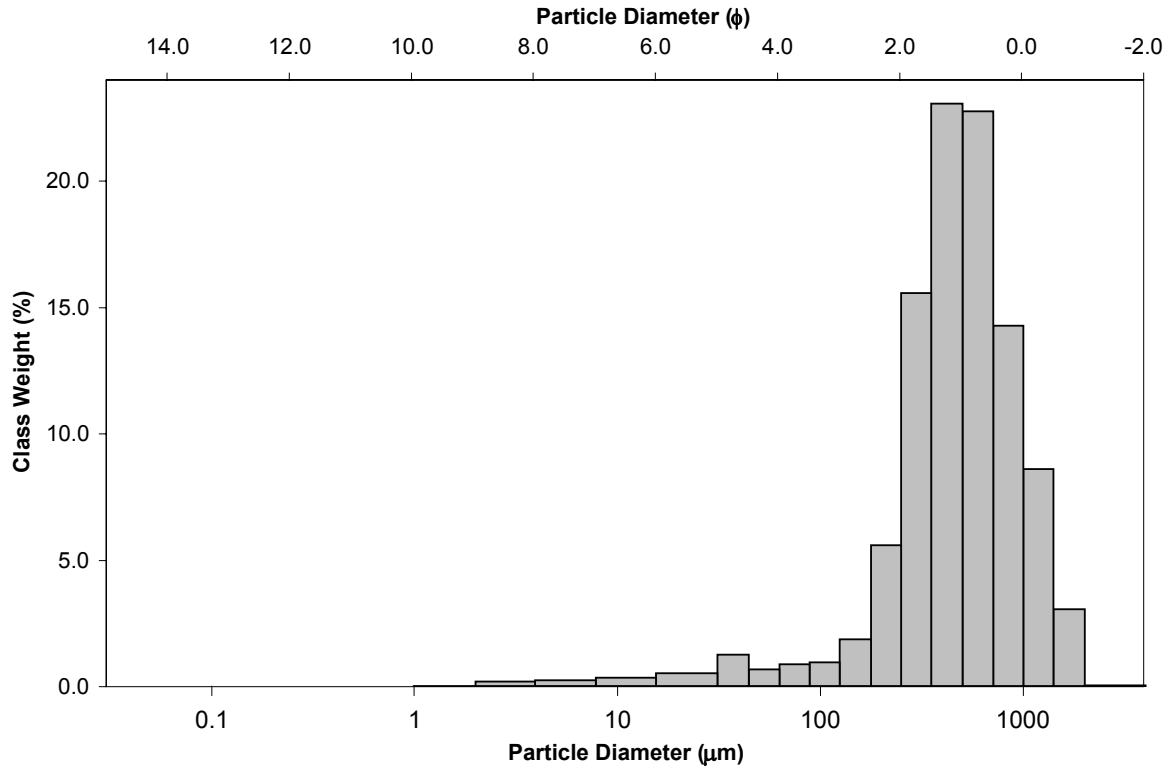
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	200.1	-0.089
MEDIAN or D_{50}:	486.0	1.041
D_{90}:	1063.6	2.321
(D_{90} / D_{10}):	5.316	-26.103
(D_{90} - D_{10}):	863.5	2.410
(D_{75} / D_{25}):	2.215	3.395
(D_{75} - D_{25}):	393.6	1.147

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	36.6%
SAND:	95.5%	MEDIUM SAND:	38.3%
MUD:	4.4%	FINE SAND:	7.3%
		V FINE SAND:	1.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.7%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.3%
V COARSE SAND:	11.5%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	572.6	433.5	1.206	486.3	1.040	Medium Sand
SORTING (σ):	361.2	2.465	1.301	2.077	1.054	Poorly Sorted
SKEWNESS (Sk):	1.225	-2.220	2.220	-0.148	0.148	Fine Skewed
KURTOSIS (K):	5.063	10.76	10.76	1.448	1.448	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 17.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

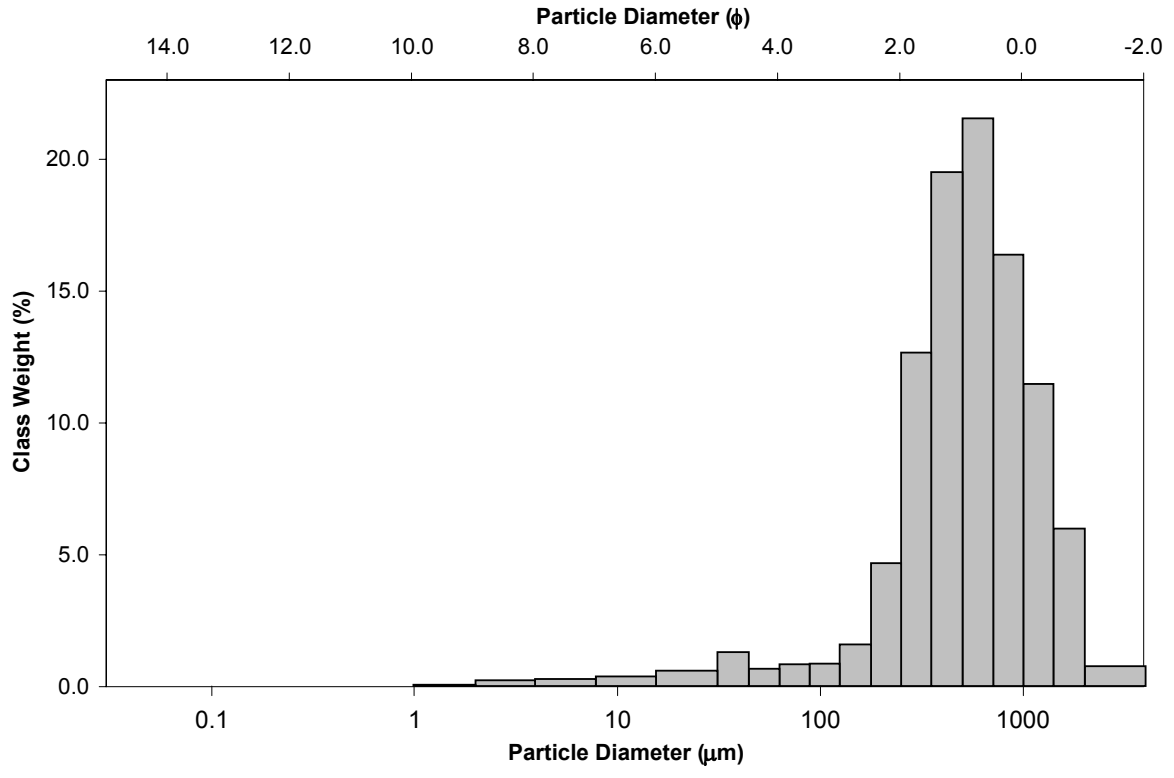
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	203.6	-0.380
MEDIAN or D_{50}:	548.8	0.866
D_{90}:	1301.8	2.296
(D_{90} / D_{10}):	6.394	-6.035
(D_{90} - D_{10}):	1098.2	2.677
(D_{75} / D_{25}):	2.471	7.454
(D_{75} - D_{25}):	517.4	1.305

GRAIN SIZE DISTRIBUTION

GRAVEL: 1.5%	COARSE SAND: 37.1%
SAND: 93.6%	MEDIUM SAND: 31.6%
MUD: 4.9%	FINE SAND: 6.1%
	V FINE SAND: 1.7%
V COARSE GRAVEL: 0.0%	V COARSE SILT: 1.9%
COARSE GRAVEL: 0.0%	COARSE SILT: 1.1%
MEDIUM GRAVEL: 0.0%	MEDIUM SILT: 0.7%
FINE GRAVEL: 0.0%	FINE SILT: 0.6%
V FINE GRAVEL: 1.5%	V FINE SILT: 0.4%
V COARSE SAND: 17.0%	CLAY: 0.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	678.2	480.9	1.056	545.9	0.873	Coarse Sand
SORTING (σ):	501.0	2.754	1.461	2.301	1.202	Poorly Sorted
SKEWNESS (Sk):	1.871	-2.136	2.136	-0.170	0.170	Fine Skewed
KURTOSIS (K):	8.389	10.16	10.16	1.466	1.466	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 22.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Bimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

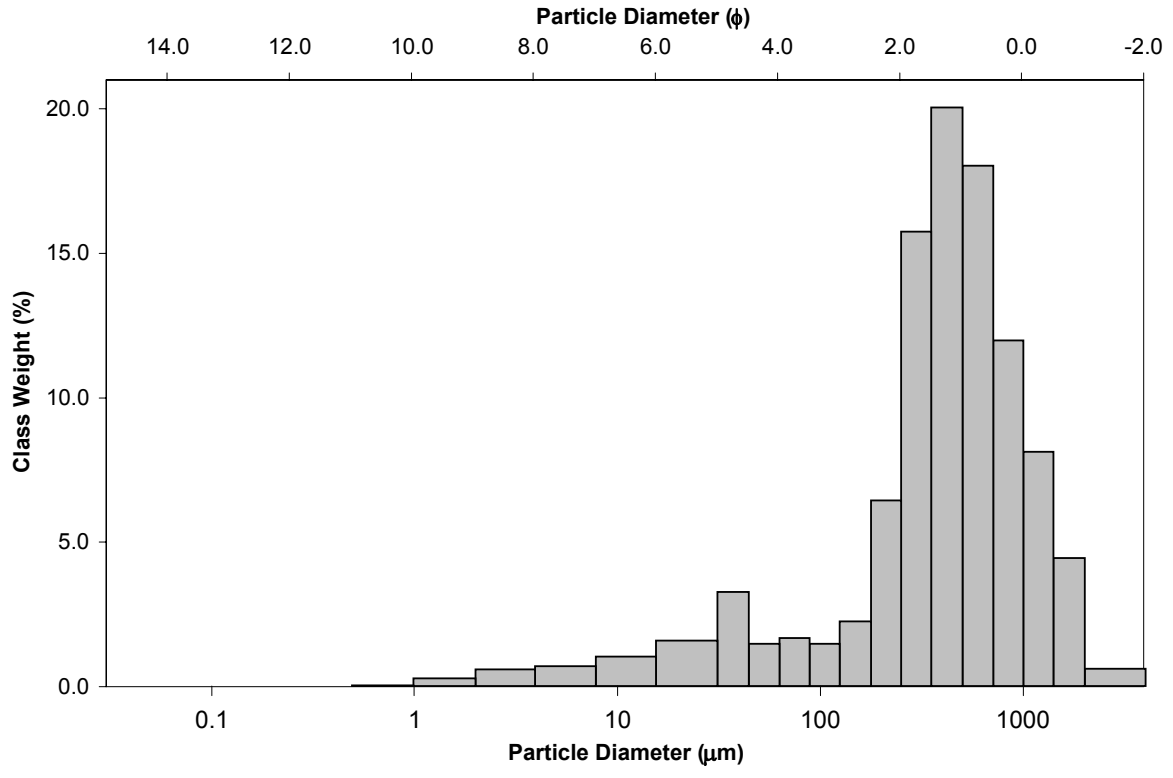
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:	37.50	4.759
MODE 3:		
D_{10}:	38.87	-0.203
MEDIAN or D_{50}:	431.4	1.213
D_{90}:	1151.2	4.685
(D_{90} / D_{10}):	29.62	-23.071
(D_{90} - D_{10}):	1112.3	4.888
(D_{75} / D_{25}):	2.735	3.846
(D_{75} - D_{25}):	445.5	1.452

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.2%	COARSE SAND:	28.7%
SAND:	86.3%	MEDIUM SAND:	34.3%
MUD:	12.5%	FINE SAND:	8.3%
		V FINE SAND:	3.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	4.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.0%
FINE GRAVEL:	0.0%	FINE SILT:	1.3%
V FINE GRAVEL:	1.2%	V FINE SILT:	1.1%
V COARSE SAND:	12.0%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	552.5	319.1	1.648	376.1	1.411	Medium Sand
SORTING (σ):	485.5	3.883	1.957	3.212	1.684	Poorly Sorted
SKEWNESS (Sk):	2.053	-1.674	1.674	-0.338	0.338	Very Fine Skewed
KURTOSIS (K):	9.489	6.026	6.026	1.847	1.847	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 27.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Coarse Sand

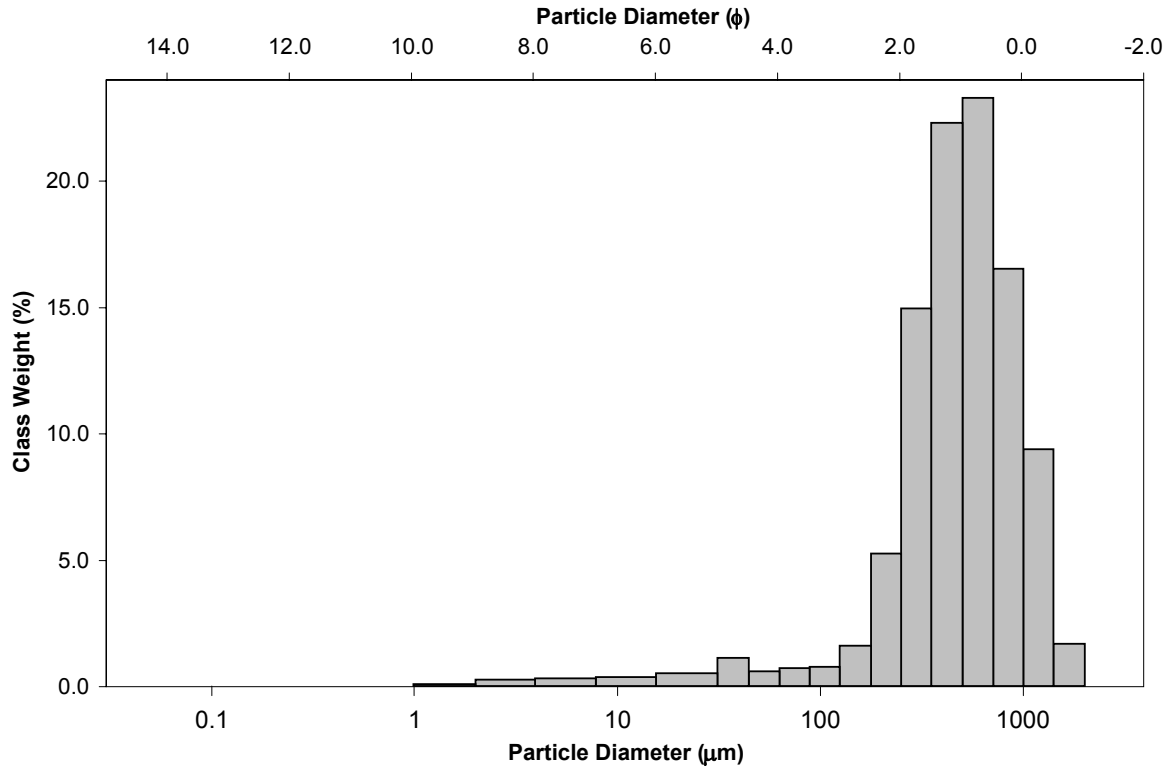
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	204.1	-0.045
MEDIAN or D_{50}:	500.8	0.998
D_{90}:	1031.4	2.293
(D_{90} / D_{10}):	5.053	-51.356
(D_{90} - D_{10}):	827.3	2.337
(D_{75} / D_{25}):	2.231	3.660
(D_{75} - D_{25}):	408.1	1.158

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	39.3%
SAND:	95.2%	MEDIUM SAND:	36.9%
MUD:	4.8%	FINE SAND:	6.7%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.7%
FINE GRAVEL:	0.0%	FINE SILT:	0.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.5%
V COARSE SAND:	10.8%	CLAY:	0.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	571.4	430.8	1.215	493.6	1.019	Medium Sand
SORTING (σ):	337.8	2.604	1.381	2.097	1.069	Poorly Sorted
SKEWNESS (Sk):	0.900	-2.593	2.593	-0.204	0.204	Fine Skewed
KURTOSIS (K):	3.906	12.42	12.42	1.480	1.480	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 32.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

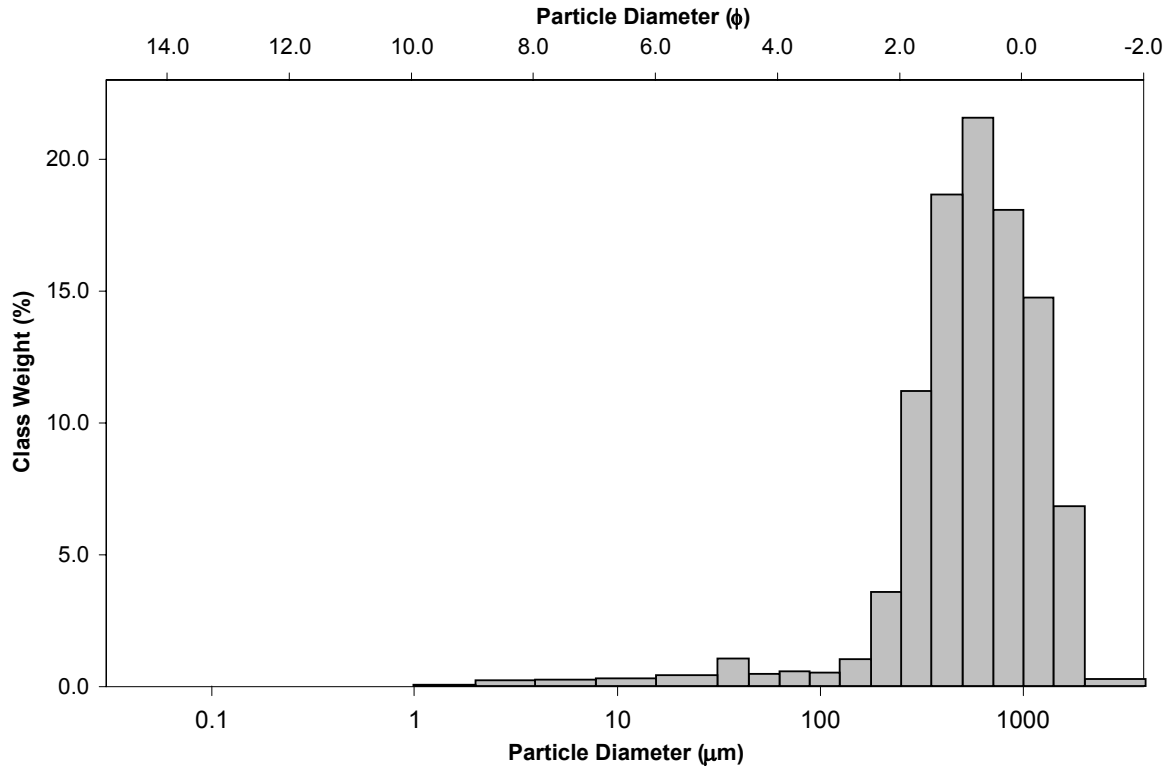
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	253.6	-0.404
MEDIAN or D_{50}:	596.7	0.745
D_{90}:	1323.3	1.980
(D_{90} / D_{10}):	5.219	-4.898
(D_{90} - D_{10}):	1069.8	2.384
(D_{75} / D_{25}):	2.452	15.15
(D_{75} - D_{25}):	555.8	1.294

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.6%	COARSE SAND:	39.1%
SAND:	95.4%	MEDIUM SAND:	29.6%
MUD:	4.0%	FINE SAND:	4.5%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.6%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.6%	V FINE SILT:	0.4%
V COARSE SAND:	21.2%	CLAY:	0.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	710.0	529.6	0.917	594.0	0.752	Coarse Sand
SORTING (σ):	454.1	2.583	1.369	2.056	1.040	Poorly Sorted
SKEWNESS (Sk):	1.278	-2.445	2.445	-0.125	0.125	Fine Skewed
KURTOSIS (K):	5.870	12.27	12.27	1.178	1.178	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 37.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

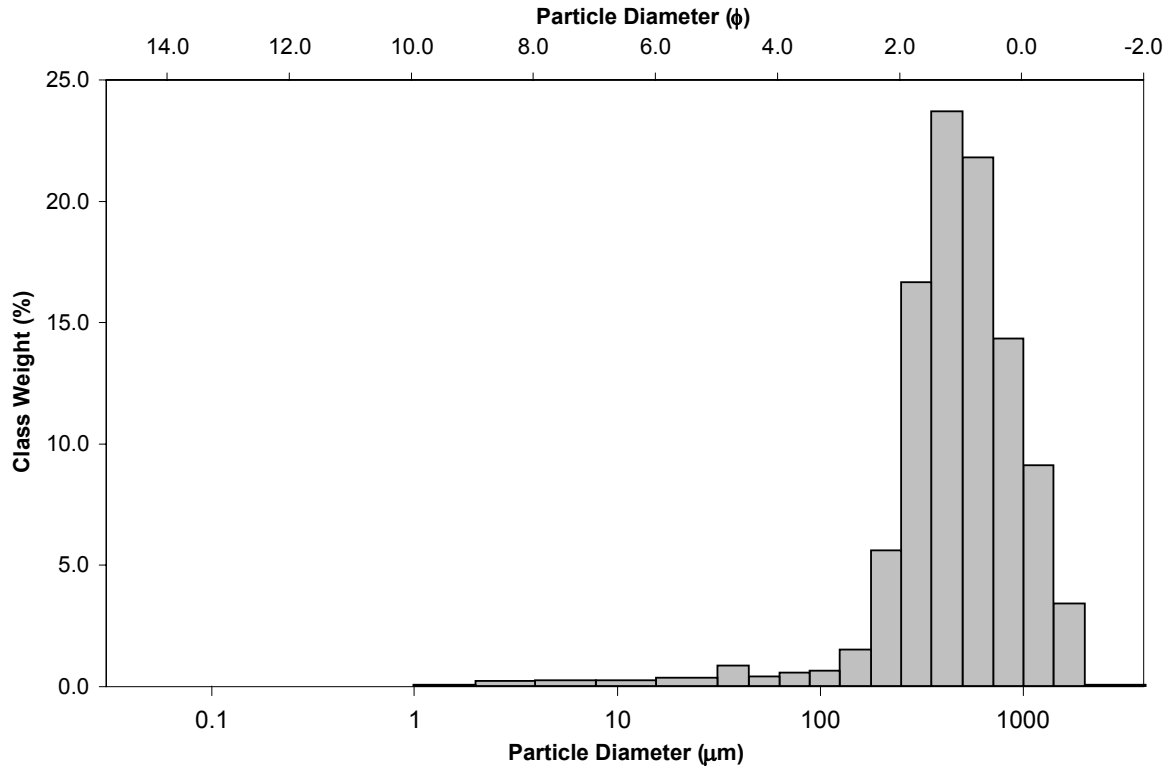
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	225.5	-0.134
MEDIAN or D_{50}:	487.1	1.038
D_{90}:	1097.6	2.149
(D_{90} / D_{10}):	4.868	-15.989
(D_{90} - D_{10}):	872.2	2.283
(D_{75} / D_{25}):	2.221	3.595
(D_{75} - D_{25}):	404.2	1.151

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	35.8%
SAND:	96.4%	MEDIUM SAND:	40.1%
MUD:	3.5%	FINE SAND:	7.0%
		V FINE SAND:	1.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.5%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.4%
V COARSE SAND:	12.3%	CLAY:	0.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	586.5	450.8	1.149	496.3	1.011	Medium Sand
SORTING (σ):	369.2	2.405	1.266	1.910	0.934	Moderately Sorted
SKEWNESS (Sk):	1.363	-2.502	2.502	-0.036	0.036	Symmetrical
KURTOSIS (K):	5.771	13.63	13.63	1.170	1.170	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 42.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Medium Sand

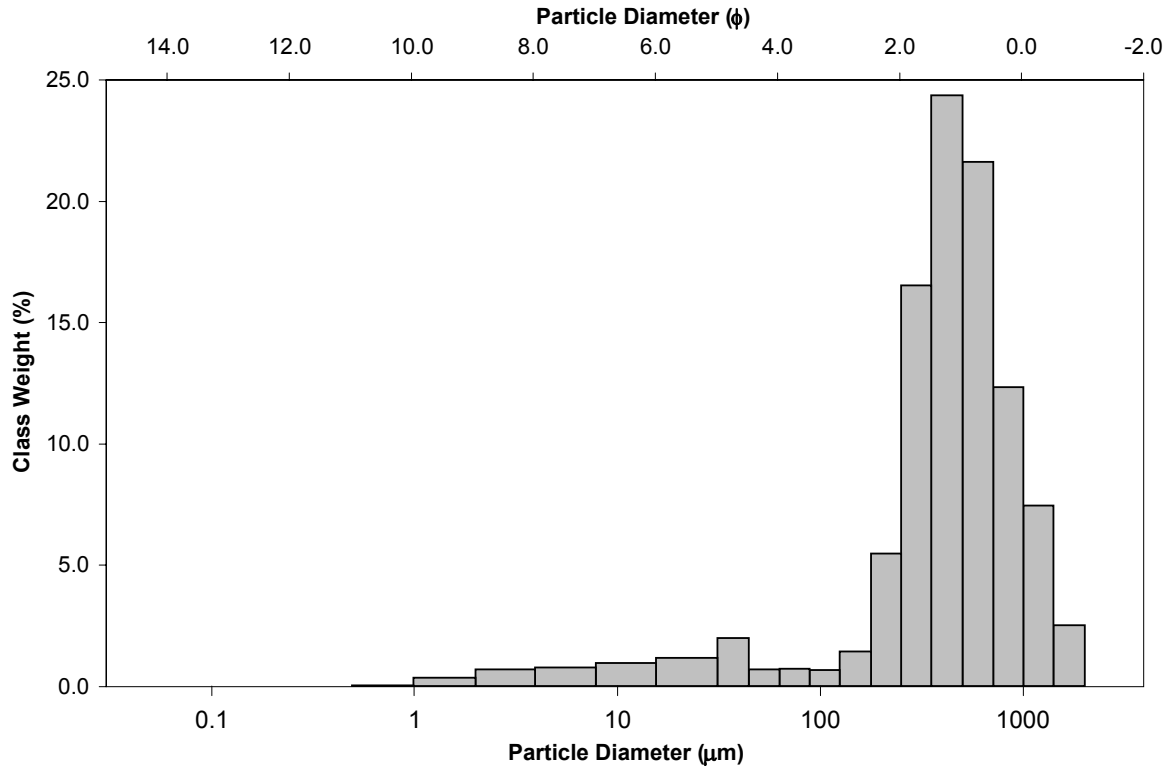
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	54.00	0.021
MEDIAN or D_{50}:	445.7	1.166
D_{90}:	985.7	4.211
(D_{90} / D_{10}):	18.25	202.0
(D_{90} - D_{10}):	931.7	4.190
(D_{75} / D_{25}):	2.301	3.054
(D_{75} - D_{25}):	376.8	1.202

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	32.7%
SAND:	89.7%	MEDIUM SAND:	39.5%
MUD:	10.3%	FINE SAND:	6.6%
		V FINE SAND:	1.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.8%
FINE GRAVEL:	0.0%	FINE SILT:	1.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.3%
V COARSE SAND:	9.5%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	519.1	332.3	1.589	429.9	1.218	Medium Sand
SORTING (σ):	355.9	3.676	1.878	2.783	1.477	Poorly Sorted
SKEWNESS (Sk):	1.107	-2.204	2.204	-0.314	0.314	Very Fine Skewed
KURTOSIS (K):	4.557	8.058	8.058	2.232	2.232	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 47.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Medium Sand

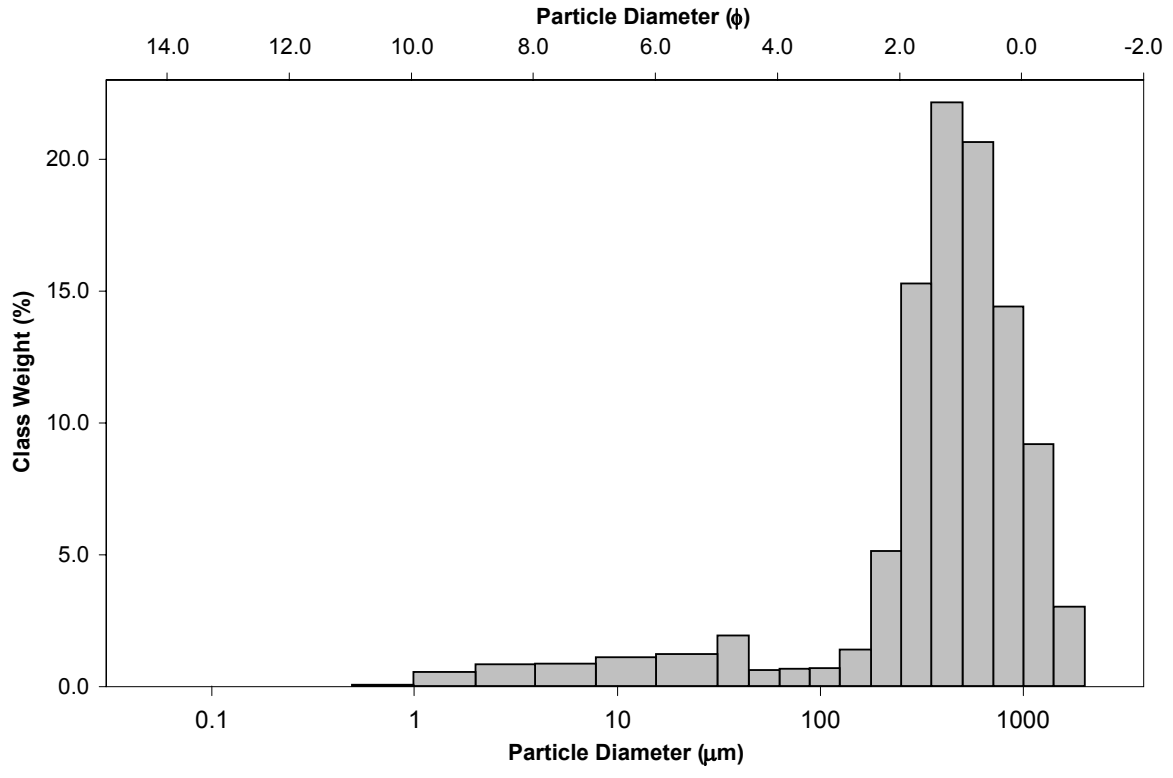
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	38.86	-0.093
MEDIAN or D_{50}:	462.3	1.113
D_{90}:	1066.8	4.685
(D_{90} / D_{10}):	27.45	-50.225
(D_{90} - D_{10}):	1027.9	4.779
(D_{75} / D_{25}):	2.467	3.682
(D_{75} - D_{25}):	424.6	1.302

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	33.6%
SAND:	88.7%	MEDIUM SAND:	36.0%
MUD:	11.3%	FINE SAND:	6.2%
		V FINE SAND:	1.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.1%
FINE GRAVEL:	0.0%	FINE SILT:	1.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.6%
V COARSE SAND:	11.6%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	542.8	329.5	1.602	439.6	1.186	Medium Sand
SORTING (σ):	379.8	4.076	2.027	3.041	1.605	Poorly Sorted
SKEWNESS (Sk):	0.964	-2.120	2.120	-0.341	0.341	Very Fine Skewed
KURTOSIS (K):	3.938	7.383	7.383	2.228	2.228	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 52.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

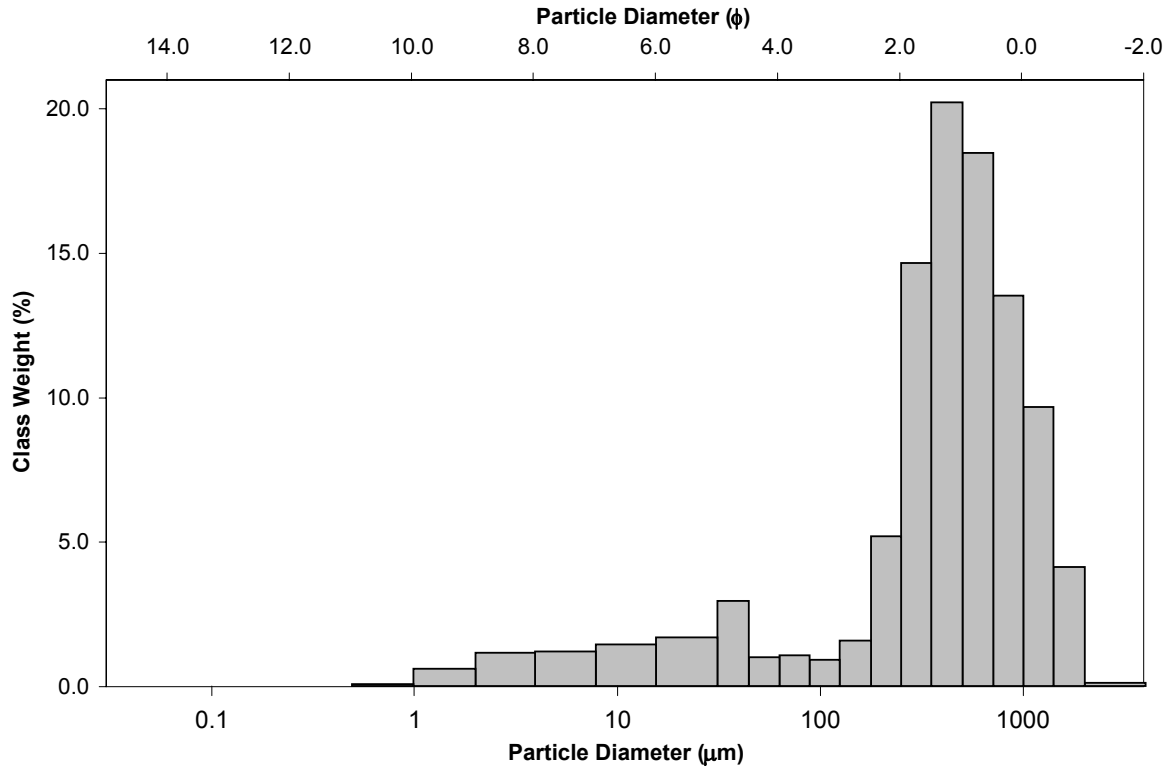
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	21.76	-0.173
MEDIAN or D_{50}:	443.0	1.175
D_{90}:	1127.5	5.522
(D_{90} / D_{10}):	51.81	-31.889
(D_{90} - D_{10}):	1105.8	5.695
(D_{75} / D_{25}):	2.803	4.201
(D_{75} - D_{25}):	466.1	1.487

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.2%	COARSE SAND:	30.2%
SAND:	84.4%	MEDIUM SAND:	33.0%
MUD:	15.4%	FINE SAND:	6.4%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.7%
FINE GRAVEL:	0.0%	FINE SILT:	2.3%
V FINE GRAVEL:	0.2%	V FINE SILT:	2.2%
V COARSE SAND:	13.0%	CLAY:	1.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	536.5	284.7	1.812	314.4	1.669	Medium Sand
SORTING (σ):	426.7	4.810	2.266	4.229	2.080	Very Poorly Sorted
SKEWNESS (Sk):	1.234	-1.713	1.713	-0.497	0.497	Very Fine Skewed
KURTOSIS (K):	5.410	5.360	5.360	2.142	2.142	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 57.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

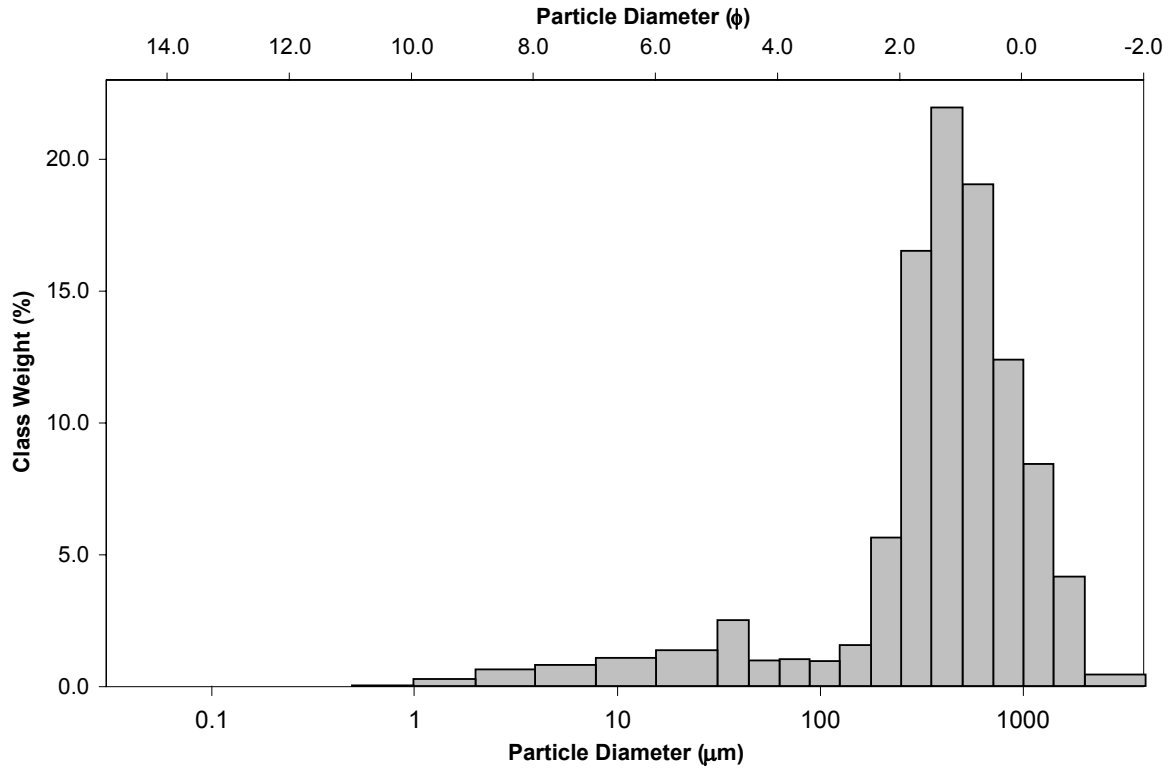
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	41.44	-0.176
MEDIAN or D_{50}:	445.1	1.168
D_{90}:	1129.4	4.593
(D_{90} / D_{10}):	27.25	-26.152
(D_{90} - D_{10}):	1088.0	4.768
(D_{75} / D_{25}):	2.529	3.641
(D_{75} - D_{25}):	425.5	1.339

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.9%	COARSE SAND:	30.1%
SAND:	87.8%	MEDIUM SAND:	36.9%
MUD:	11.4%	FINE SAND:	6.9%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.6%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.0%
FINE GRAVEL:	0.0%	FINE SILT:	1.6%
V FINE GRAVEL:	0.9%	V FINE SILT:	1.2%
V COARSE SAND:	12.0%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	557.0	334.1	1.581	427.0	1.228	Medium Sand
SORTING (σ):	455.2	3.839	1.941	2.982	1.576	Poorly Sorted
SKEWNESS (Sk):	1.946	-1.902	1.902	-0.293	0.293	Fine Skewed
KURTOSIS (K):	9.306	6.840	6.840	2.050	2.050	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 62.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Coarse Sand

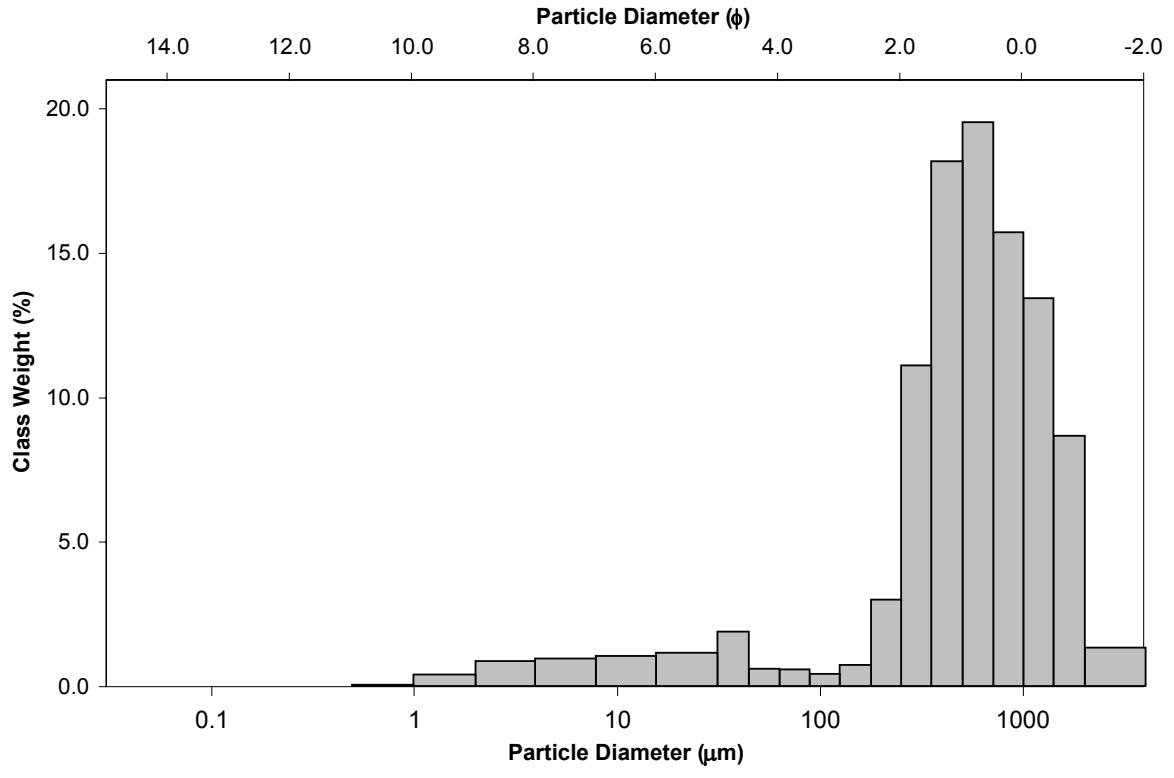
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	41.96	-0.544
MEDIAN or D_{50}:	567.7	0.817
D_{90}:	1457.6	4.575
(D_{90} / D_{10}):	34.74	-8.416
(D_{90} - D_{10}):	1415.7	5.119
(D_{75} / D_{25}):	2.801	28.28
(D_{75} - D_{25}):	619.1	1.486

GRAIN SIZE DISTRIBUTION

GRAVEL:	2.5%	COARSE SAND:	33.4%
SAND:	86.6%	MEDIUM SAND:	27.9%
MUD:	10.8%	FINE SAND:	3.5%
		V FINE SAND:	1.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.0%
FINE GRAVEL:	0.0%	FINE SILT:	1.8%
V FINE GRAVEL:	2.5%	V FINE SILT:	1.6%
V COARSE SAND:	20.9%	CLAY:	0.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	722.7	412.1	1.279	561.9	0.832	Coarse Sand
SORTING (σ):	588.4	4.340	2.118	3.246	1.699	Poorly Sorted
SKEWNESS (Sk):	1.630	-2.005	2.005	-0.287	0.287	Fine Skewed
KURTOSIS (K):	6.650	7.006	7.006	2.064	2.064	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 67.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

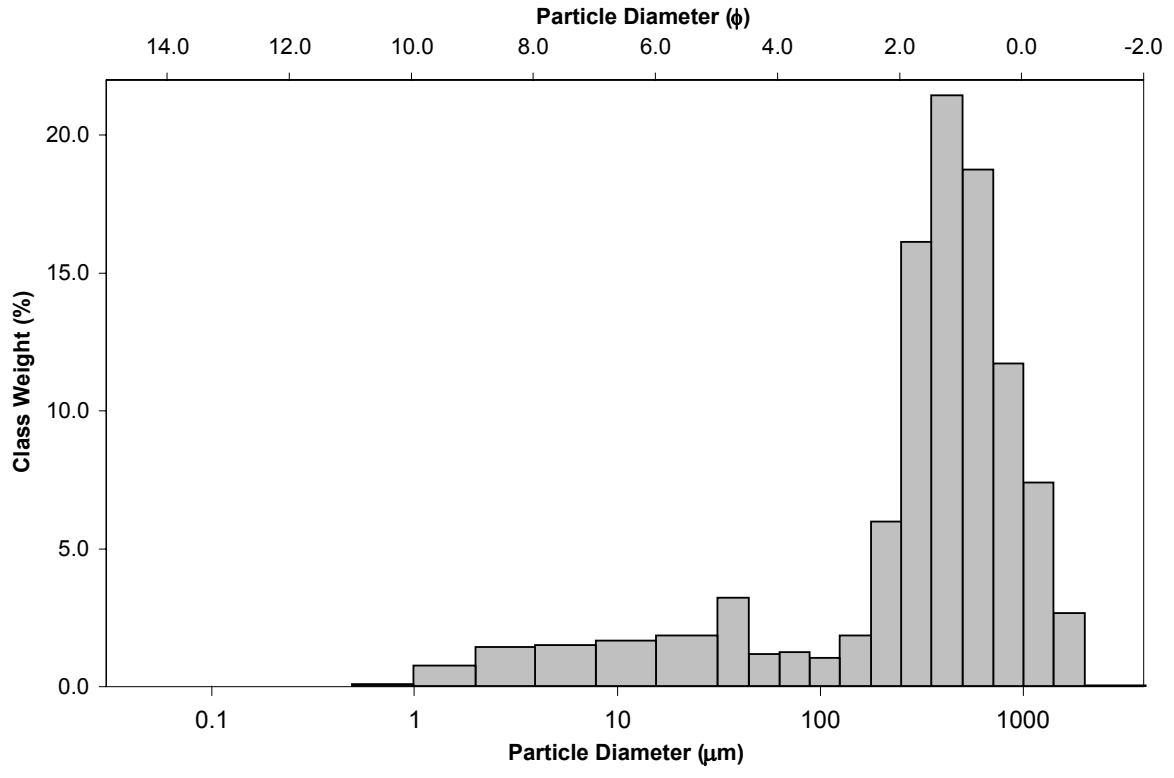
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	15.58	0.029
MEDIAN or D_{50}:	405.1	1.304
D_{90}:	979.9	6.004
(D_{90} / D_{10}):	62.91	205.3
(D_{90} - D_{10}):	964.4	5.975
(D_{75} / D_{25}):	2.915	3.440
(D_{75} - D_{25}):	423.7	1.543

GRAIN SIZE DISTRIBUTION

GRAVEL: 0.0%	COARSE SAND: 28.5%
SAND: 82.4%	MEDIUM SAND: 35.2%
MUD: 17.6%	FINE SAND: 7.3%
	V FINE SAND: 2.1%
V COARSE GRAVEL: 0.0%	V COARSE SILT: 4.1%
COARSE GRAVEL: 0.0%	COARSE SILT: 3.5%
MEDIUM GRAVEL: 0.0%	MEDIUM SILT: 3.1%
FINE GRAVEL: 0.0%	FINE SILT: 2.8%
V FINE GRAVEL: 0.0%	V FINE SILT: 2.6%
V COARSE SAND: 9.3%	CLAY: 1.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	476.2	242.6	2.043	239.0	2.065	Fine Sand
SORTING (σ):	382.0	5.078	2.344	4.872	2.285	Very Poorly Sorted
SKEWNESS (Sk):	1.172	-1.603	1.603	-0.564	0.564	Very Fine Skewed
KURTOSIS (K):	4.932	4.790	4.790	2.127	2.127	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 72.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Medium Sand

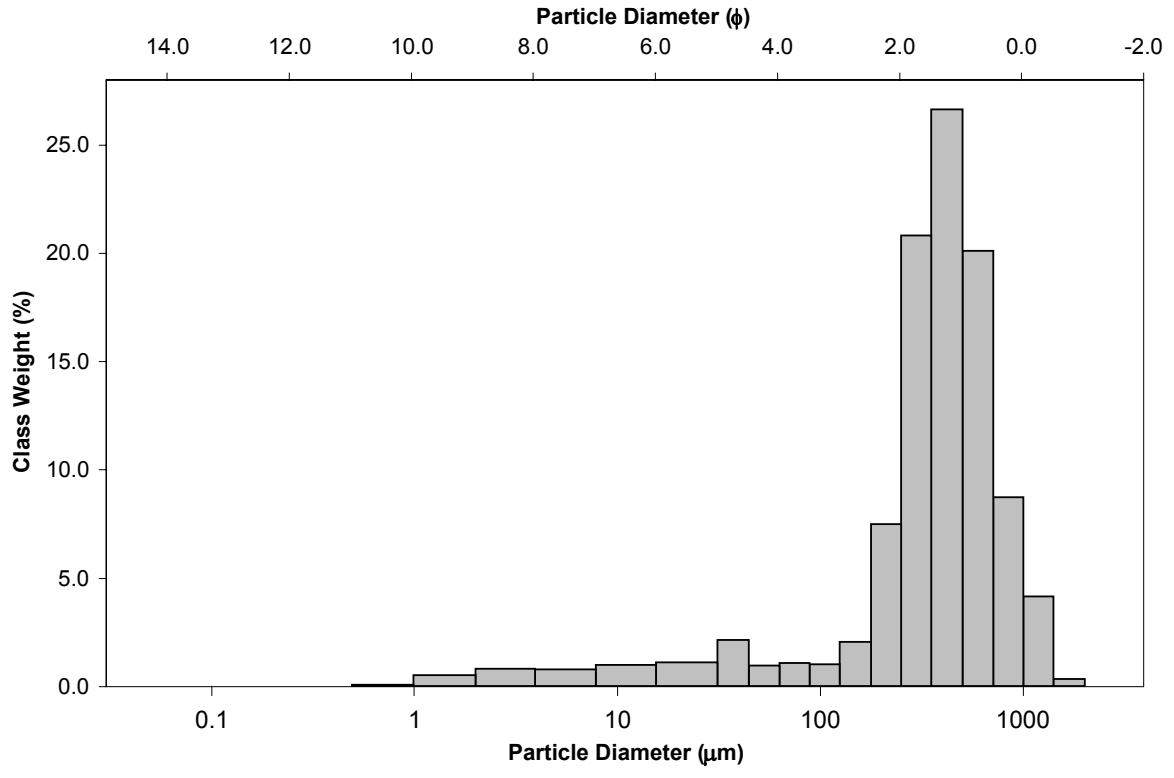
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	42.39	0.341
MEDIAN or D_{50}:	391.8	1.352
D_{90}:	789.3	4.560
(D_{90} / D_{10}):	18.62	13.36
(D_{90} - D_{10}):	747.0	4.219
(D_{75} / D_{25}):	2.166	2.365
(D_{75} - D_{25}):	305.6	1.115

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	27.8%
SAND:	88.9%	MEDIUM SAND:	45.7%
MUD:	11.1%	FINE SAND:	9.1%
		V FINE SAND:	2.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.9%
FINE GRAVEL:	0.0%	FINE SILT:	1.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.5%
V COARSE SAND:	4.3%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	434.0	279.6	1.838	364.0	1.458	Medium Sand
SORTING (σ):	281.9	3.710	1.891	2.737	1.453	Poorly Sorted
SKEWNESS (Sk):	0.969	-2.246	2.246	-0.385	0.385	Very Fine Skewed
KURTOSIS (K):	4.679	8.061	8.061	2.398	2.398	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 77.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

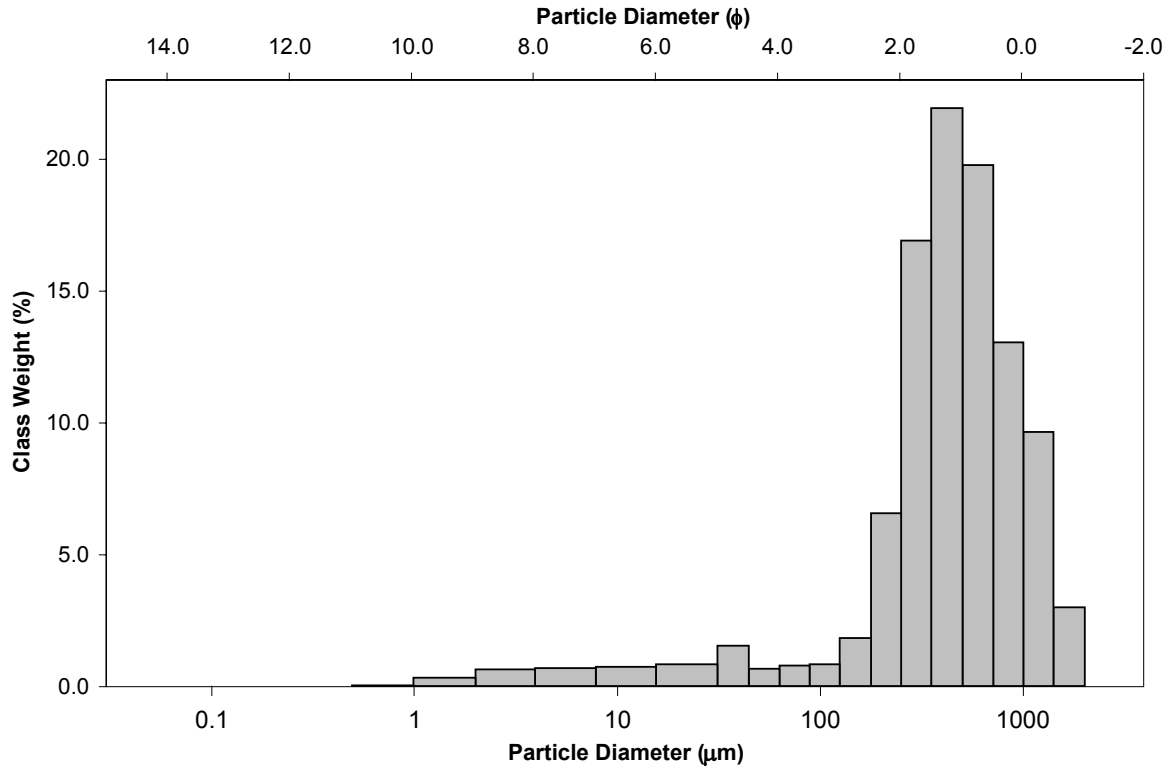
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	124.7	-0.117
MEDIAN or D_{50}:	454.0	1.139
D_{90}:	1084.8	3.003
(D_{90} / D_{10}):	8.697	-25.573
(D_{90} - D_{10}):	960.1	3.121
(D_{75} / D_{25}):	2.442	3.565
(D_{75} - D_{25}):	416.9	1.288

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	31.9%
SAND:	91.6%	MEDIUM SAND:	37.8%
MUD:	8.4%	FINE SAND:	8.1%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.6%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.4%
FINE GRAVEL:	0.0%	FINE SILT:	1.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.2%
V COARSE SAND:	12.2%	CLAY:	0.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	545.7	358.0	1.482	449.9	1.152	Medium Sand
SORTING (σ):	376.2	3.479	1.799	2.716	1.441	Poorly Sorted
SKEWNESS (Sk):	1.050	-2.295	2.295	-0.263	0.263	Fine Skewed
KURTOSIS (K):	4.024	8.994	8.994	1.968	1.968	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 82.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

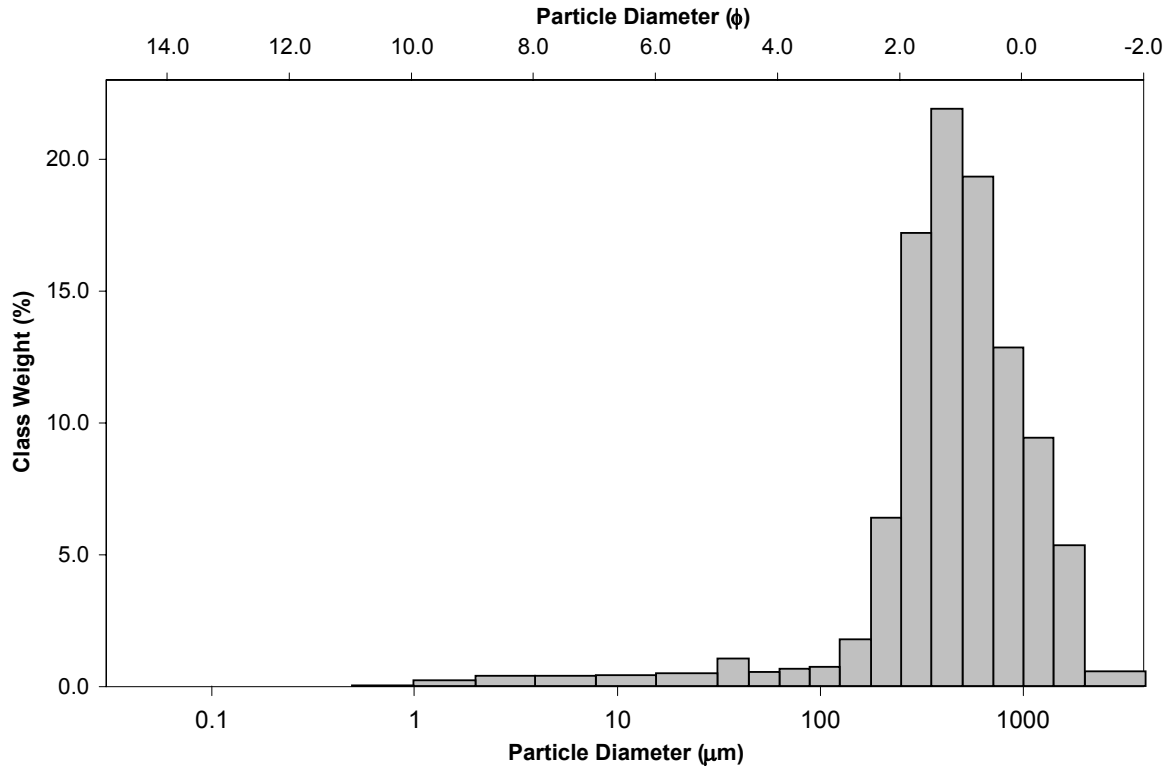
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	192.5	-0.299
MEDIAN or D_{50}:	476.2	1.071
D_{90}:	1230.1	2.377
(D_{90} / D_{10}):	6.391	-7.957
(D_{90} - D_{10}):	1037.6	2.676
(D_{75} / D_{25}):	2.488	4.471
(D_{75} - D_{25}):	460.0	1.315

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.1%	COARSE SAND:	31.5%
SAND:	93.5%	MEDIUM SAND:	38.3%
MUD:	5.3%	FINE SAND:	8.0%
		V FINE SAND:	1.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	0.8%
V FINE GRAVEL:	1.1%	V FINE SILT:	0.8%
V COARSE SAND:	14.4%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	615.1	423.5	1.239	494.0	1.018	Medium Sand
SORTING (σ):	474.7	2.980	1.575	2.357	1.237	Poorly Sorted
SKEWNESS (Sk):	1.996	-2.357	2.357	-0.117	0.117	Fine Skewed
KURTOSIS (K):	9.000	11.21	11.21	1.546	1.546	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 87.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

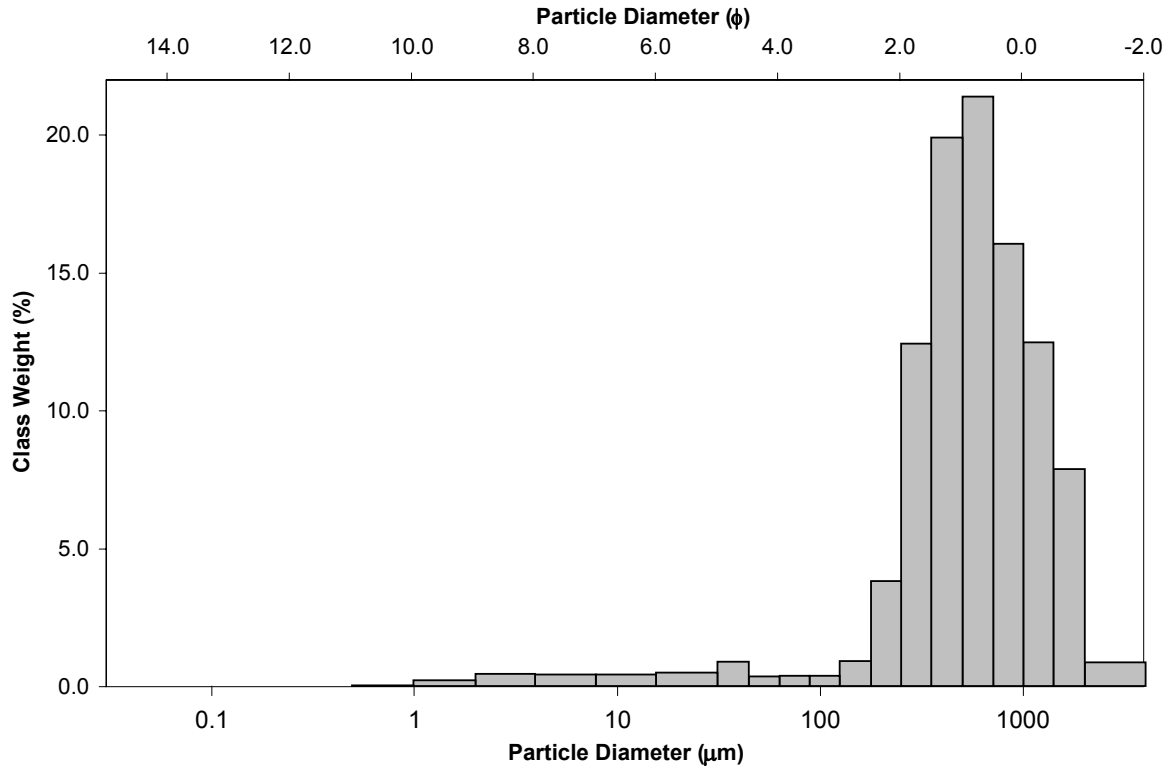
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	238.4	-0.472
MEDIAN or D_{50}:	570.2	0.811
D_{90}:	1387.4	2.069
(D_{90} / D_{10}):	5.820	-4.379
(D_{90} - D_{10}):	1149.1	2.541
(D_{75} / D_{25}):	2.512	12.65
(D_{75} - D_{25}):	556.1	1.329

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.7%	COARSE SAND:	36.4%
SAND:	93.1%	MEDIUM SAND:	31.6%
MUD:	5.2%	FINE SAND:	4.6%
		V FINE SAND:	0.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	1.7%	V FINE SILT:	0.8%
V COARSE SAND:	19.7%	CLAY:	0.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	717.1	494.6	1.016	579.9	0.786	Coarse Sand
SORTING (σ):	525.5	3.078	1.622	2.398	1.262	Poorly Sorted
SKEWNESS (Sk):	1.734	-2.561	2.561	-0.165	0.165	Fine Skewed
KURTOSIS (K):	7.402	11.99	11.99	1.552	1.552	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 92.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

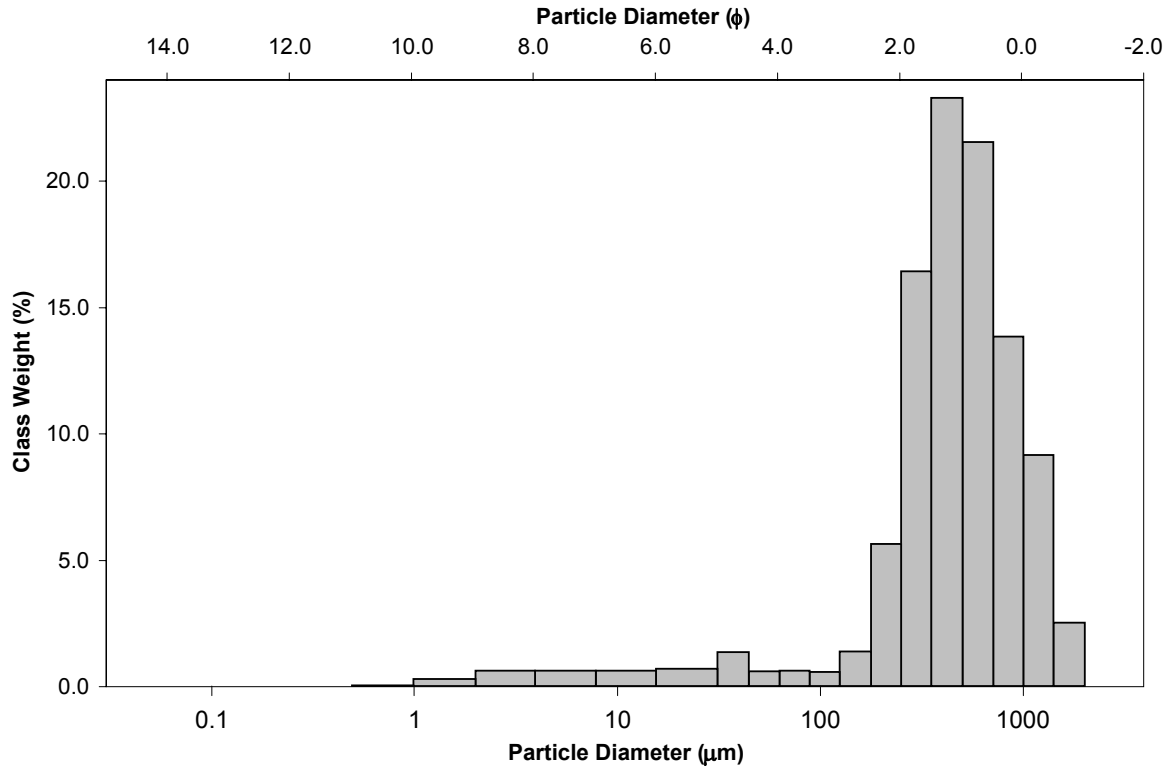
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	177.7	-0.074
MEDIAN or D_{50}:	468.9	1.093
D_{90}:	1052.3	2.492
(D_{90} / D_{10}):	5.921	-33.909
(D_{90} - D_{10}):	874.6	2.566
(D_{75} / D_{25}):	2.291	3.375
(D_{75} - D_{25}):	397.5	1.196

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	34.5%
SAND:	92.5%	MEDIUM SAND:	38.8%
MUD:	7.5%	FINE SAND:	6.8%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.4%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.2%
FINE GRAVEL:	0.0%	FINE SILT:	1.2%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.2%
V COARSE SAND:	11.3%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	552.2	377.4	1.406	472.2	1.083	Medium Sand
SORTING (σ):	359.3	3.295	1.720	2.507	1.326	Poorly Sorted
SKEWNESS (Sk):	1.031	-2.513	2.513	-0.241	0.241	Fine Skewed
KURTOSIS (K):	4.157	10.34	10.34	1.978	1.978	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 97.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

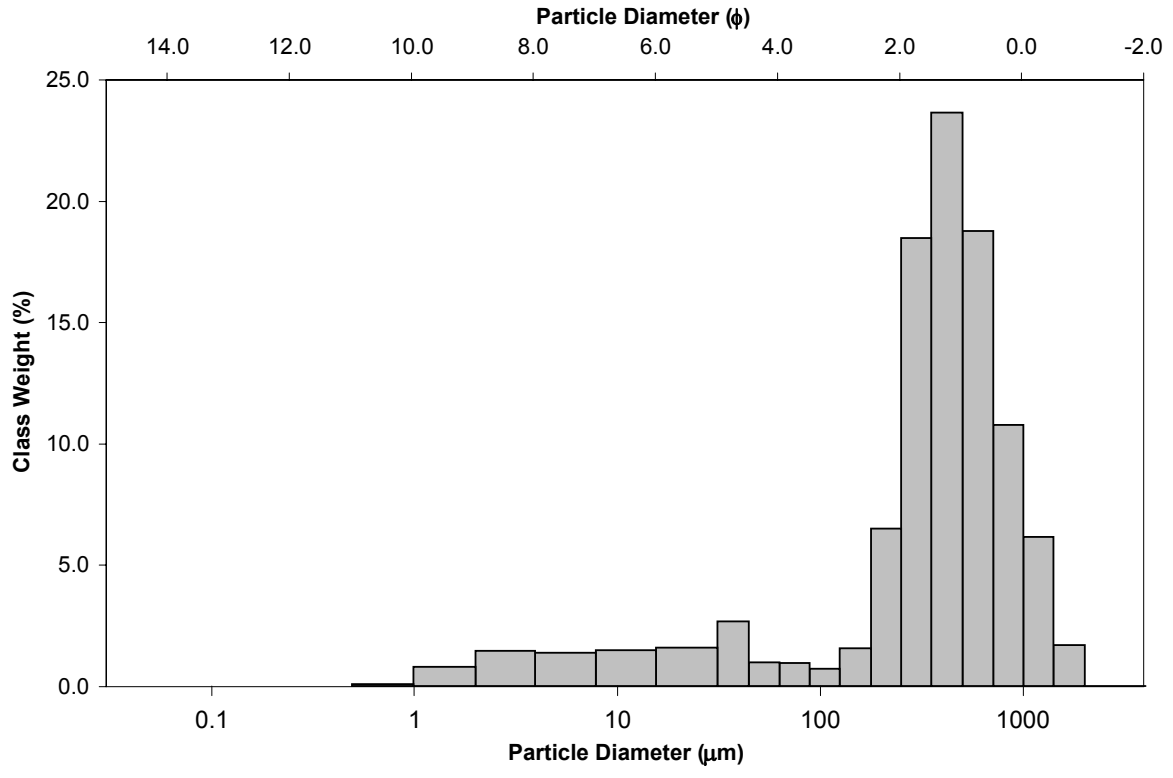
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	16.64	0.132
MEDIAN or D_{50}:	396.3	1.335
D_{90}:	912.9	5.909
(D_{90} / D_{10}):	54.85	44.92
(D_{90} - D_{10}):	896.2	5.777
(D_{75} / D_{25}):	2.477	2.837
(D_{75} - D_{25}):	364.0	1.308

GRAIN SIZE DISTRIBUTION

GRAVEL: 0.0%	COARSE SAND: 27.8%
SAND: 83.9%	MEDIUM SAND: 39.6%
MUD: 16.1%	FINE SAND: 7.5%
	V FINE SAND: 1.6%
V COARSE GRAVEL: 0.0%	V COARSE SILT: 3.4%
COARSE GRAVEL: 0.0%	COARSE SILT: 3.0%
MEDIUM GRAVEL: 0.0%	MEDIUM SILT: 2.8%
FINE GRAVEL: 0.0%	FINE SILT: 2.6%
V FINE GRAVEL: 0.0%	V FINE SILT: 2.7%
V COARSE SAND: 7.3%	CLAY: 1.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	456.6	244.6	2.031	259.9	1.944	Medium Sand
SORTING (σ):	347.4	4.878	2.286	4.332	2.115	Very Poorly Sorted
SKEWNESS (Sk):	1.161	-1.760	1.760	-0.557	0.557	Very Fine Skewed
KURTOSIS (K):	5.095	5.352	5.352	2.491	2.491	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 102.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Poorly Sorted Medium Sand

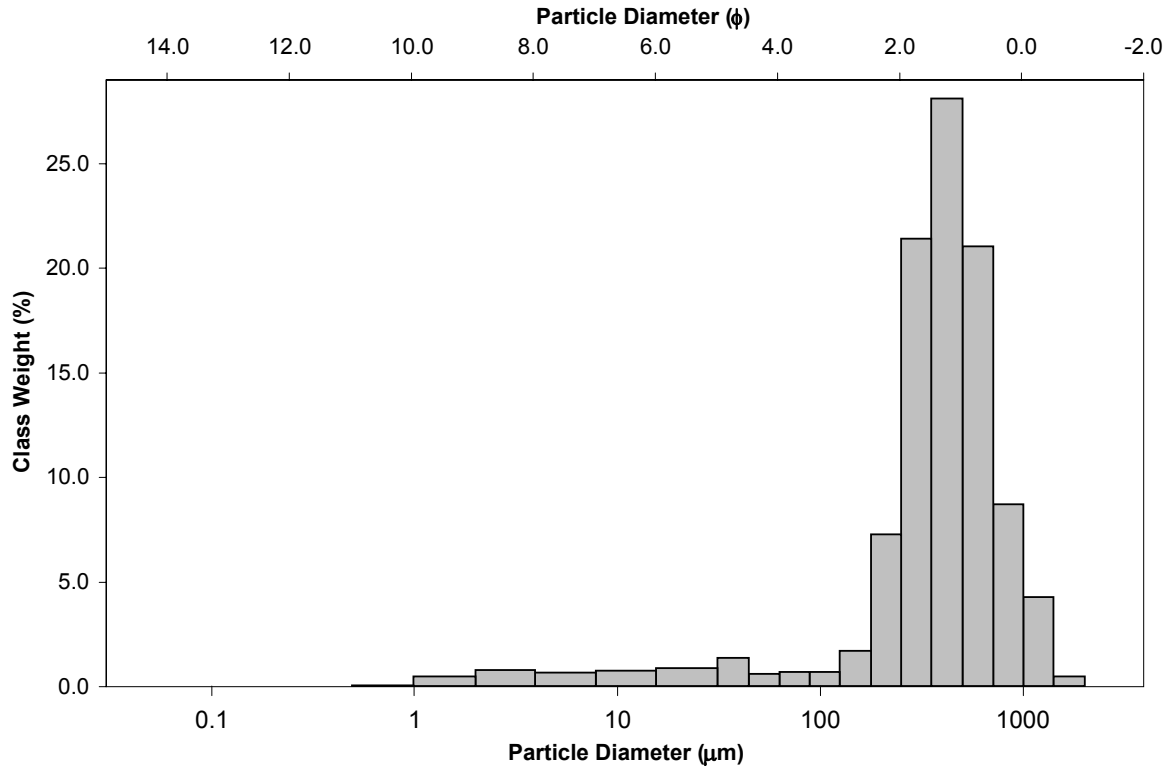
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	124.9	0.324
MEDIAN or D_{50}:	404.5	1.306
D_{90}:	799.0	3.002
(D_{90} / D_{10}):	6.399	9.271
(D_{90} - D_{10}):	674.1	2.678
(D_{75} / D_{25}):	2.074	2.328
(D_{75} - D_{25}):	298.9	1.053

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	28.8%
SAND:	91.3%	MEDIUM SAND:	48.0%
MUD:	8.7%	FINE SAND:	8.6%
		V FINE SAND:	1.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	1.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	1.4%
FINE GRAVEL:	0.0%	FINE SILT:	1.3%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.4%
V COARSE SAND:	4.6%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	451.3	308.3	1.698	391.0	1.355	Medium Sand
SORTING (σ):	277.7	3.415	1.772	2.500	1.322	Poorly Sorted
SKEWNESS (Sk):	1.064	-2.572	2.572	-0.334	0.334	Very Fine Skewed
KURTOSIS (K):	5.123	10.06	10.06	2.359	2.359	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 107.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Very Coarse Silty Medium Sand

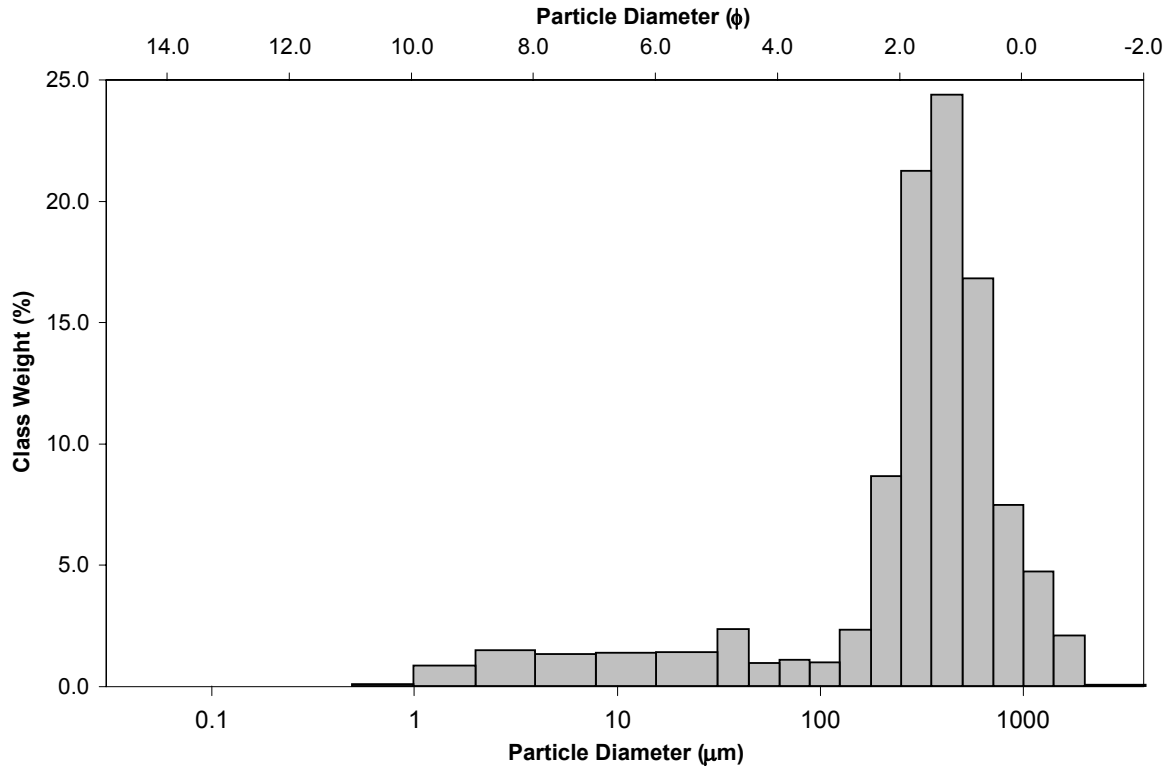
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	17.32	0.249
MEDIAN or D_{50}:	366.2	1.449
D_{90}:	841.4	5.851
(D_{90} / D_{10}):	48.57	23.49
(D_{90} - D_{10}):	824.1	5.602
(D_{75} / D_{25}):	2.464	2.513
(D_{75} - D_{25}):	327.4	1.301

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	22.9%
SAND:	84.5%	MEDIUM SAND:	43.0%
MUD:	15.4%	FINE SAND:	10.3%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.6%
FINE GRAVEL:	0.0%	FINE SILT:	2.5%
V FINE GRAVEL:	0.1%	V FINE SILT:	2.7%
V COARSE SAND:	6.4%	CLAY:	1.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	429.2	232.4	2.105	266.8	1.906	Medium Sand
SORTING (σ):	346.2	4.738	2.244	3.964	1.987	Poorly Sorted
SKEWNESS (Sk):	1.698	-1.790	1.790	-0.517	0.517	Very Fine Skewed
KURTOSIS (K):	8.093	5.584	5.584	2.509	2.509	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 112.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

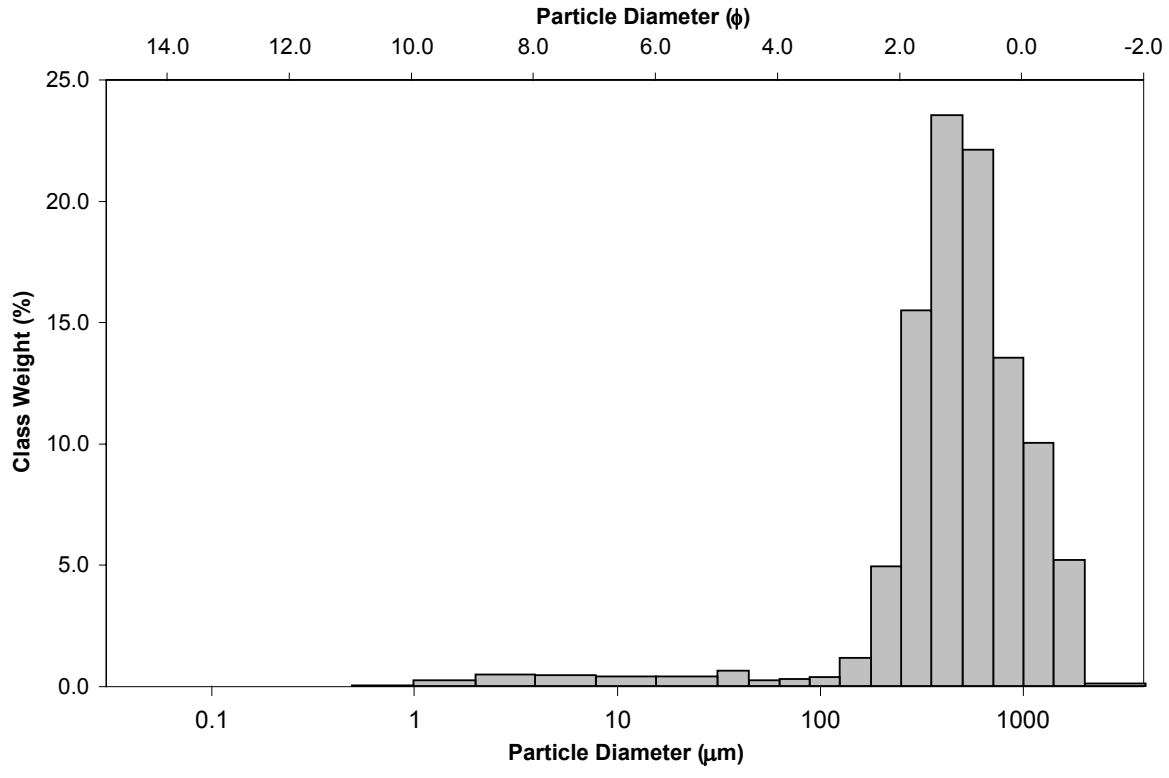
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	225.5	-0.259
MEDIAN or D_{50}:	501.0	0.997
D_{90}:	1196.7	2.149
(D_{90} / D_{10}):	5.306	-8.295
(D_{90} - D_{10}):	971.1	2.408
(D_{75} / D_{25}):	2.265	4.159
(D_{75} - D_{25}):	431.1	1.179

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.2%	COARSE SAND:	35.0%
SAND:	95.0%	MEDIUM SAND:	38.4%
MUD:	4.8%	FINE SAND:	6.0%
		V FINE SAND:	0.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.8%
FINE GRAVEL:	0.0%	FINE SILT:	0.9%
V FINE GRAVEL:	0.2%	V FINE SILT:	0.9%
V COARSE SAND:	14.9%	CLAY:	0.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	614.2	440.6	1.182	514.0	0.960	Coarse Sand
SORTING (σ):	408.1	2.948	1.560	2.134	1.093	Poorly Sorted
SKEWNESS (Sk):	1.385	-2.801	2.801	-0.108	0.108	Fine Skewed
KURTOSIS (K):	5.776	13.44	13.44	1.467	1.467	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 117.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

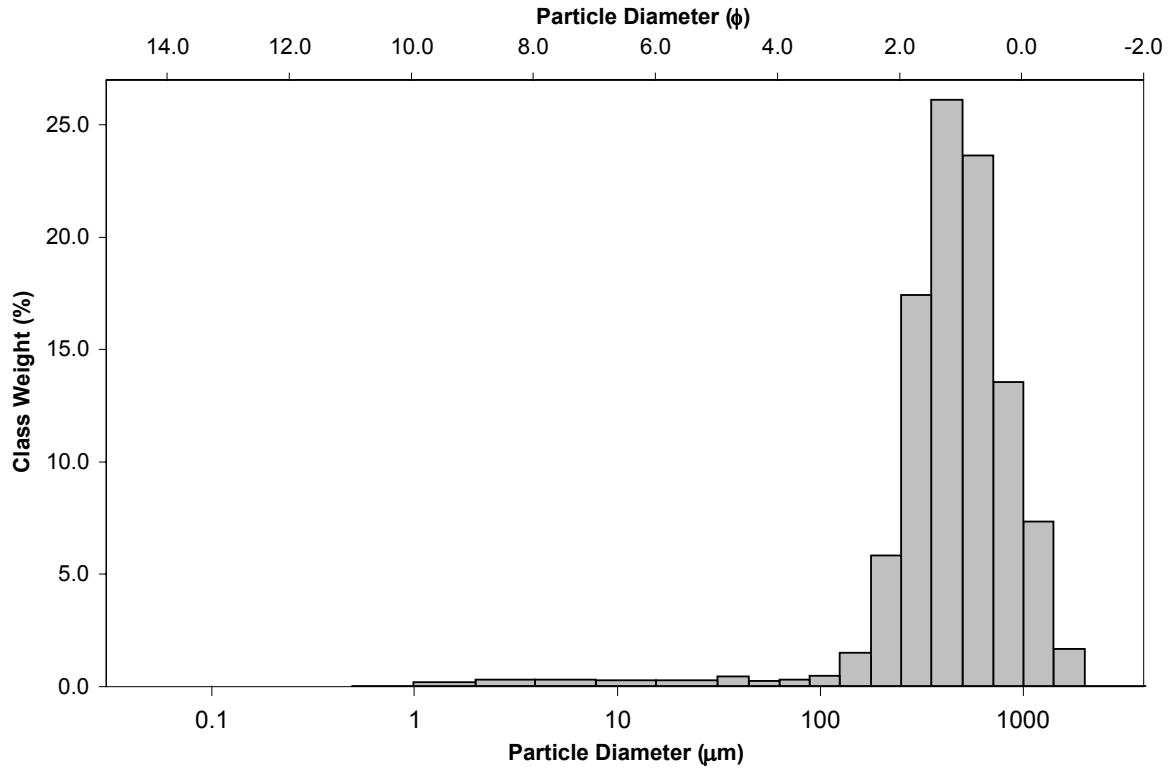
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:		
MODE 3:		
D_{10}:	232.3	0.044
MEDIAN or D_{50}:	471.3	1.085
D_{90}:	970.0	2.106
(D_{90} / D_{10}):	4.176	47.93
(D_{90} - D_{10}):	737.7	2.062
(D_{75} / D_{25}):	2.058	2.866
(D_{75} - D_{25}):	349.1	1.041

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	36.8%
SAND:	96.7%	MEDIUM SAND:	43.2%
MUD:	3.3%	FINE SAND:	7.2%
		V FINE SAND:	0.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.5%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.5%
FINE GRAVEL:	0.0%	FINE SILT:	0.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.6%
V COARSE SAND:	8.8%	CLAY:	0.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	548.5	428.3	1.223	475.8	1.072	Medium Sand
SORTING (σ):	316.6	2.465	1.301	1.794	0.843	Moderately Sorted
SKEWNESS (Sk):	1.204	-3.165	3.165	-0.027	0.027	Symmetrical
KURTOSIS (K):	4.918	17.70	17.70	1.156	1.156	Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 122.5**

ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

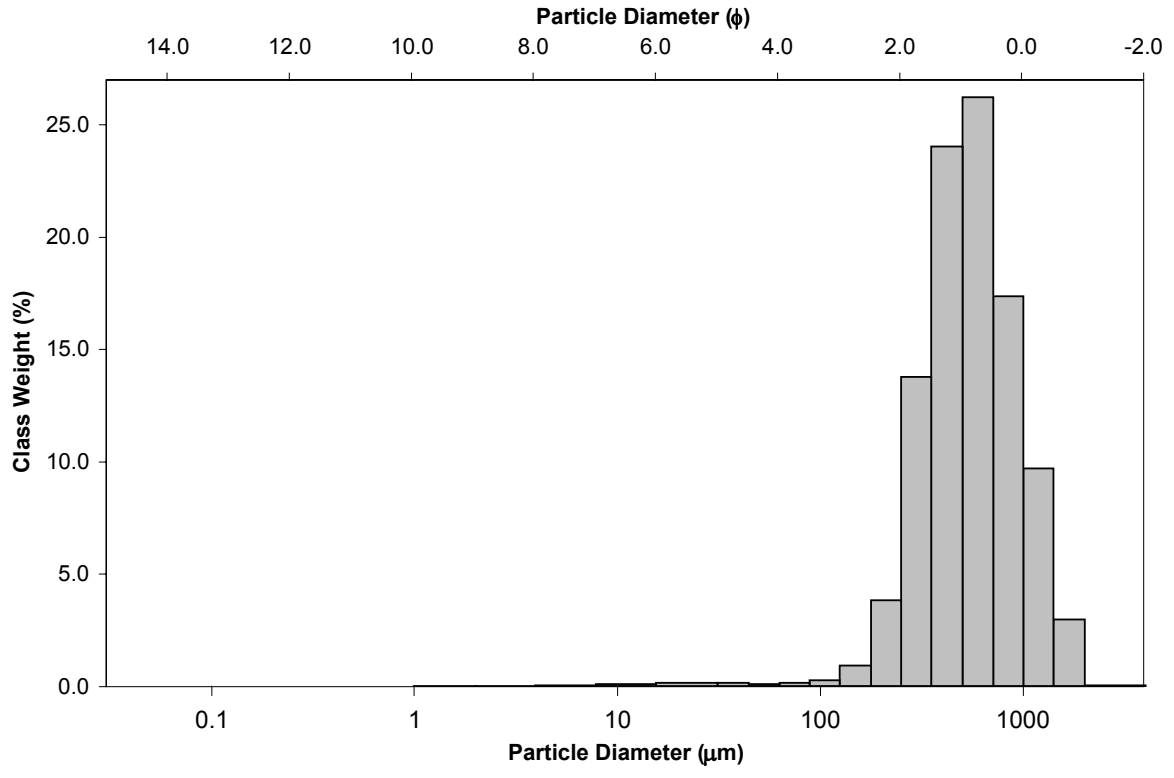
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	277.1	-0.136
MEDIAN or D_{50}:	542.6	0.882
D_{90}:	1099.2	1.852
(D_{90} / D_{10}):	3.967	-13.575
(D_{90} - D_{10}):	822.1	1.988
(D_{75} / D_{25}):	2.052	3.904
(D_{75} - D_{25}):	400.3	1.037

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	43.5%
SAND:	99.1%	MEDIUM SAND:	37.9%
MUD:	0.8%	FINE SAND:	4.7%
		V FINE SAND:	0.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.2%
FINE GRAVEL:	0.0%	FINE SILT:	0.1%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	12.6%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	629.0	533.0	0.908	546.9	0.871	Coarse Sand
SORTING (σ):	341.0	1.827	0.869	1.700	0.765	Moderately Sorted
SKEWNESS (Sk):	1.336	-1.687	1.687	0.018	-0.018	Symmetrical
KURTOSIS (K):	5.623	13.10	13.10	0.995	0.995	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 127.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

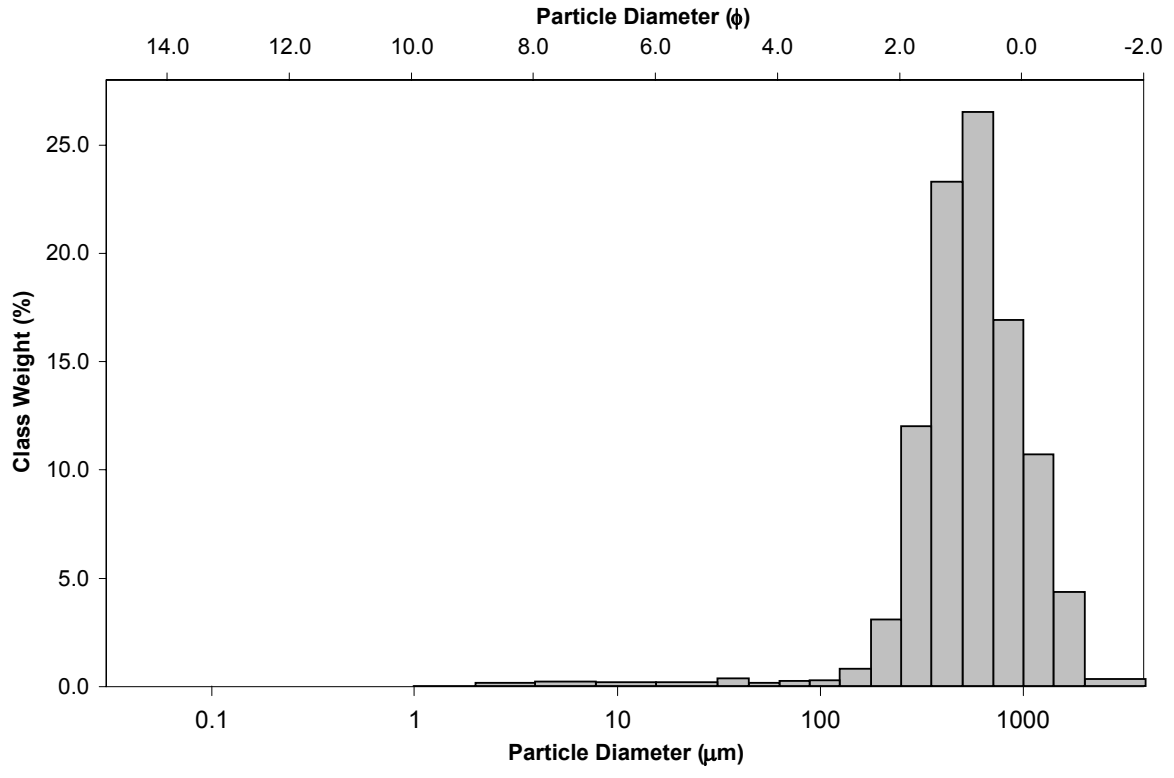
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	278.6	-0.261
MEDIAN or D_{50}:	559.6	0.837
D_{90}:	1198.3	1.844
(D_{90} / D_{10}):	4.301	-7.066
(D_{90} - D_{10}):	919.6	2.105
(D_{75} / D_{25}):	2.106	4.785
(D_{75} - D_{25}):	431.3	1.074

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.7%	COARSE SAND:	43.0%
SAND:	97.4%	MEDIUM SAND:	35.2%
MUD:	1.9%	FINE SAND:	3.9%
		V FINE SAND:	0.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.4%
V FINE GRAVEL:	0.7%	V FINE SILT:	0.3%
V COARSE SAND:	14.8%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	666.4	536.1	0.900	568.8	0.814	Coarse Sand
SORTING (σ):	411.7	2.140	1.098	1.747	0.805	Moderately Sorted
SKEWNESS (Sk):	1.946	-2.633	2.633	0.015	-0.015	Symmetrical
KURTOSIS (K):	9.594	17.12	17.12	1.034	1.034	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **P3 132.5** ANALYST & DATE: Gomes, Fall 2007

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

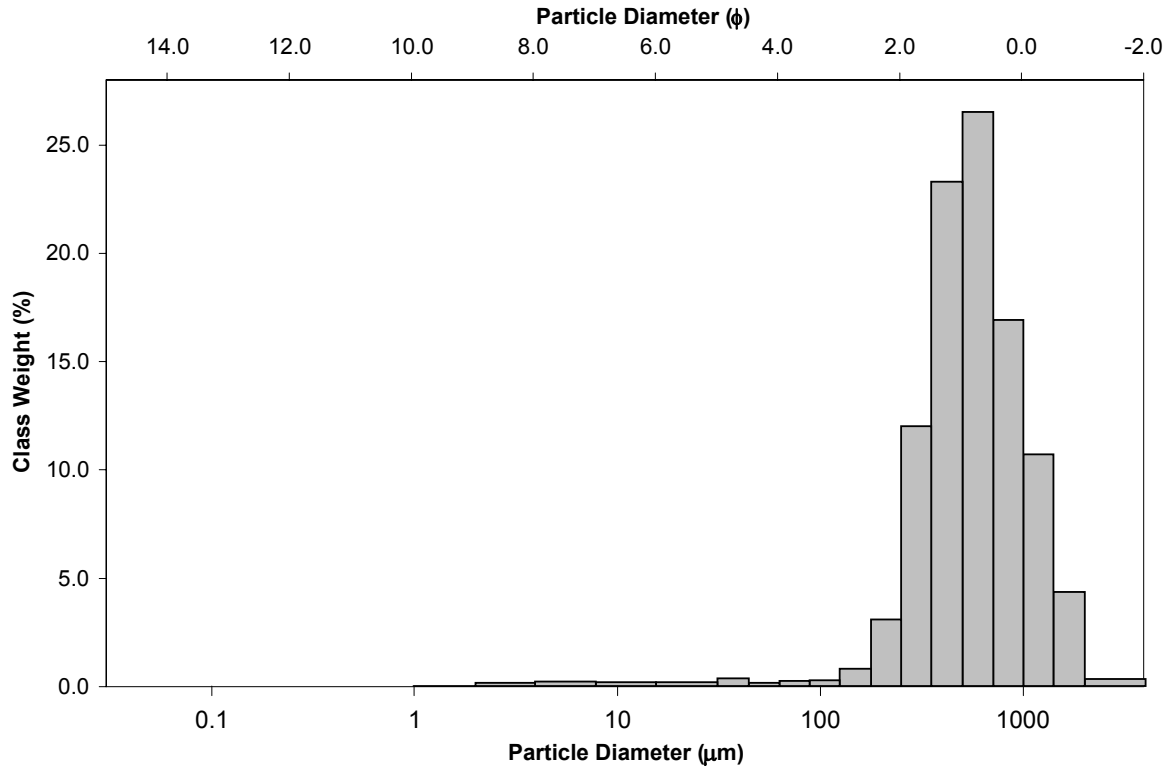
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	278.6	-0.261
MEDIAN or D_{50}:	559.6	0.837
D_{90}:	1198.3	1.844
(D_{90} / D_{10}):	4.301	-7.066
(D_{90} - D_{10}):	919.6	2.105
(D_{75} / D_{25}):	2.106	4.785
(D_{75} - D_{25}):	431.3	1.074

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.7%	COARSE SAND:	43.0%
SAND:	97.4%	MEDIUM SAND:	35.2%
MUD:	1.9%	FINE SAND:	3.9%
		V FINE SAND:	0.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.4%
V FINE GRAVEL:	0.7%	V FINE SILT:	0.3%
V COARSE SAND:	14.8%	CLAY:	0.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	666.4	536.1	0.900	568.8	0.814	Coarse Sand
SORTING (σ):	411.7	2.140	1.098	1.747	0.805	Moderately Sorted
SKEWNESS (Sk):	1.946	-2.633	2.633	0.015	-0.015	Symmetrical
KURTOSIS (K):	9.594	17.12	17.12	1.034	1.034	Mesokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 2.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Silty Coarse Sand

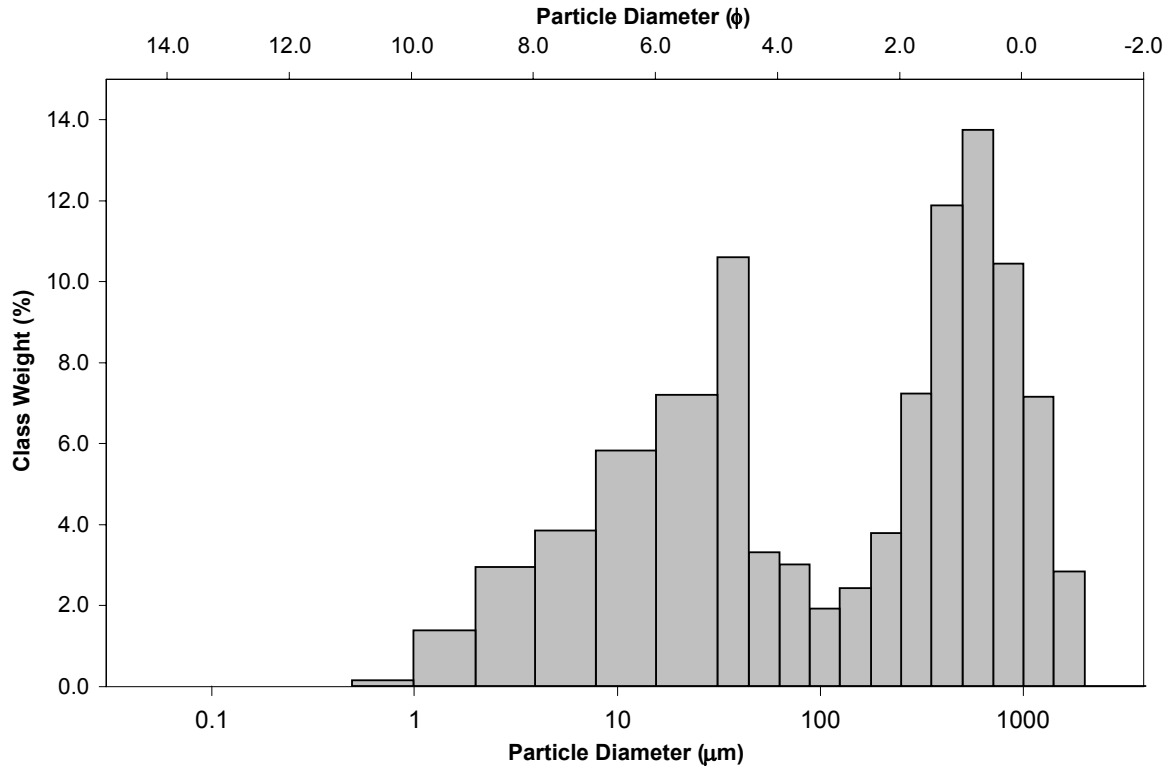
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:		
D_{10}:	5.241	0.102
MEDIAN or D_{50}:	106.5	3.231
D_{90}:	931.7	7.576
(D_{90} / D_{10}):	177.8	74.18
(D_{90} - D_{10}):	926.4	7.474
(D_{75} / D_{25}):	32.00	6.836
(D_{75} - D_{25}):	534.9	5.000

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	20.0%
SAND:	53.3%	MEDIUM SAND:	15.9%
MUD:	46.7%	FINE SAND:	5.1%
		V FINE SAND:	4.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	11.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	12.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	9.6%
FINE GRAVEL:	0.0%	FINE SILT:	6.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	4.8%
V COARSE SAND:	8.2%	CLAY:	2.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	336.4	87.77	3.510	89.65	3.480	Very Fine Sand
SORTING (σ):	414.6	7.469	2.901	7.475	2.902	Very Poorly Sorted
SKEWNESS (Sk):	1.395	-0.306	0.306	-0.158	0.158	Fine Skewed
KURTOSIS (K):	4.515	1.828	1.828	0.717	0.717	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 7.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Silty Coarse Sand

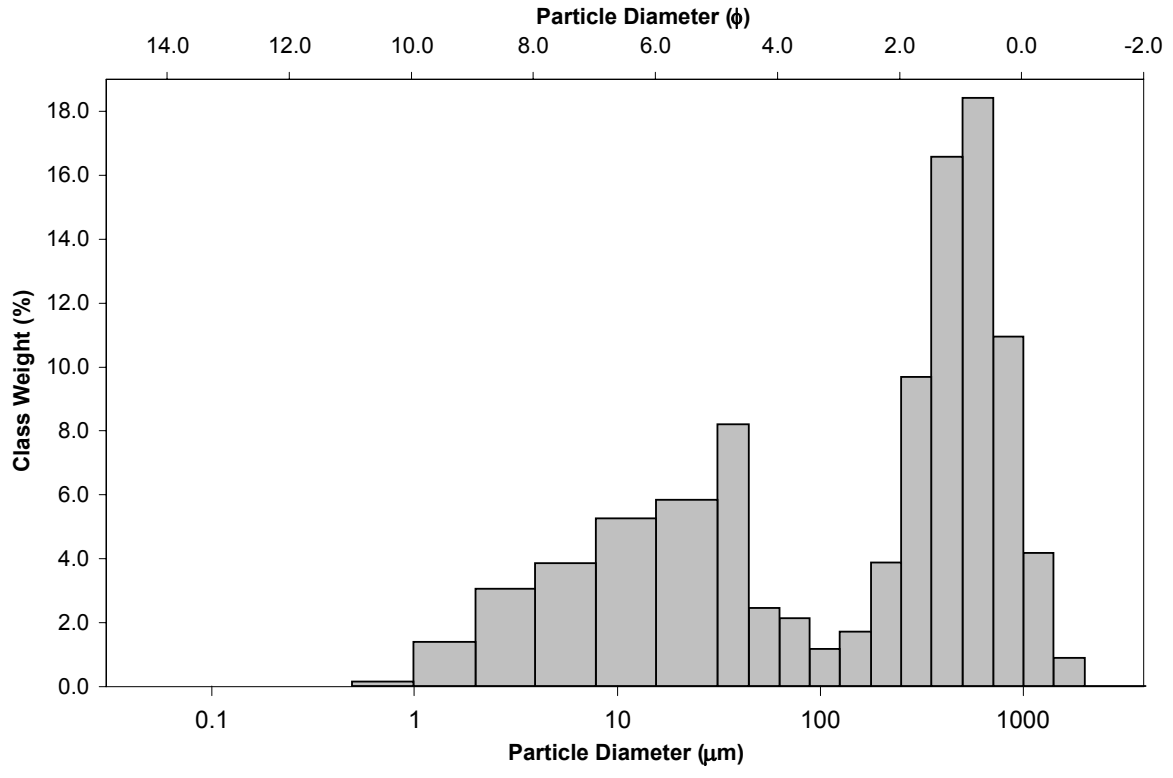
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:		
D_{10}:	5.051	0.316
MEDIAN or D_{50}:	261.5	1.935
D_{90}:	803.4	7.629
(D_{90} / D_{10}):	159.0	24.15
(D_{90} - D_{10}):	798.3	7.313
(D_{75} / D_{25}):	29.99	6.610
(D_{75} - D_{25}):	527.2	4.906

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	24.7%
SAND:	58.5%	MEDIUM SAND:	22.2%
MUD:	41.5%	FINE SAND:	4.7%
		V FINE SAND:	2.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	8.9%
COARSE GRAVEL:	0.0%	COARSE SILT:	9.8%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	8.8%
FINE GRAVEL:	0.0%	FINE SILT:	6.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	5.0%
V COARSE SAND:	4.2%	CLAY:	2.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	329.8	99.20	3.333	116.7	3.099	Very Fine Sand
SORTING (σ):	349.0	7.366	2.881	7.120	2.832	Very Poorly Sorted
SKEWNESS (Sk):	1.088	-0.537	0.537	-0.558	0.558	Very Fine Skewed
KURTOSIS (K):	4.032	1.924	1.924	0.707	0.707	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 12.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Silty Coarse Sand

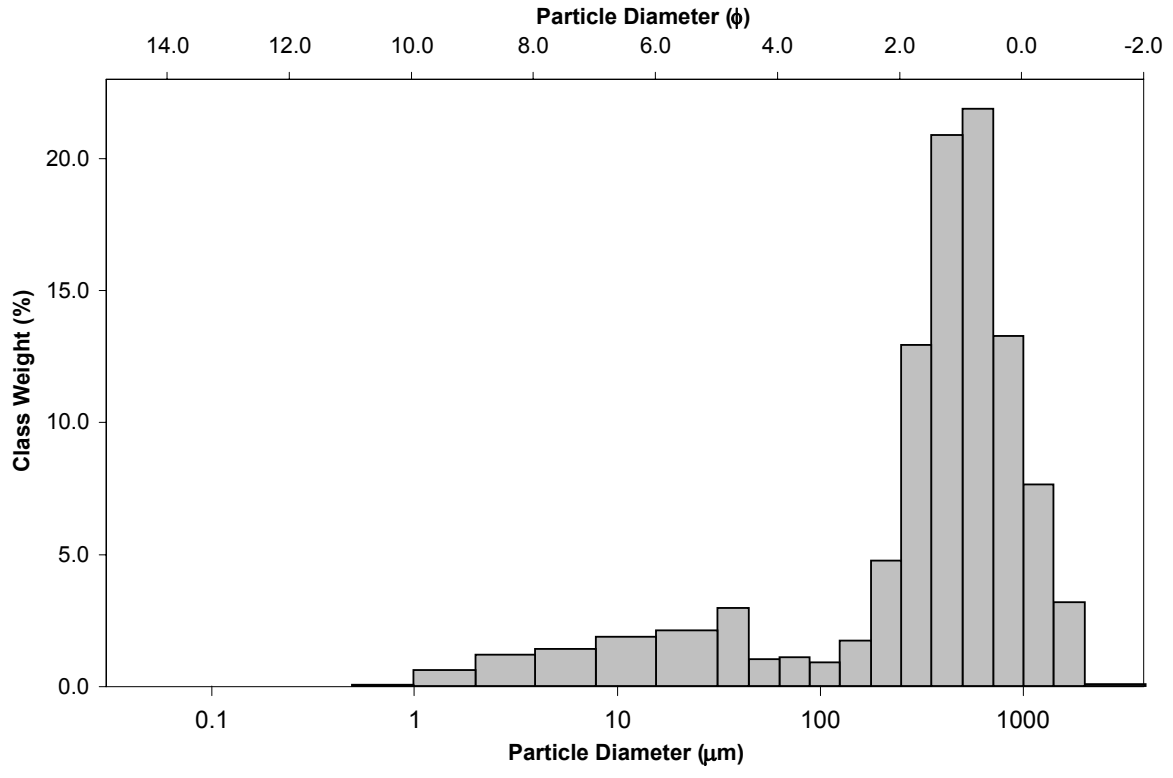
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	16.77	-0.013
MEDIAN or D_{50}:	441.7	1.179
D_{90}:	1009.1	5.898
(D_{90} / D_{10}):	60.16	-453.403
(D_{90} - D_{10}):	992.3	5.911
(D_{75} / D_{25}):	2.764	3.630
(D_{75} - D_{25}):	433.6	1.467

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	32.8%
SAND:	82.6%	MEDIUM SAND:	31.7%
MUD:	17.3%	FINE SAND:	6.1%
		V FINE SAND:	1.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	3.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	4.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.5%
FINE GRAVEL:	0.0%	FINE SILT:	2.6%
V FINE GRAVEL:	0.1%	V FINE SILT:	2.2%
V COARSE SAND:	10.1%	CLAY:	1.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	506.3	261.7	1.934	251.1	1.993	Medium Sand
SORTING (σ):	398.9	4.988	2.318	4.796	2.262	Very Poorly Sorted
SKEWNESS (Sk):	1.208	-1.609	1.609	-0.584	0.584	Very Fine Skewed
KURTOSIS (K):	5.611	4.792	4.792	2.174	2.174	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 17.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Silty Coarse Sand

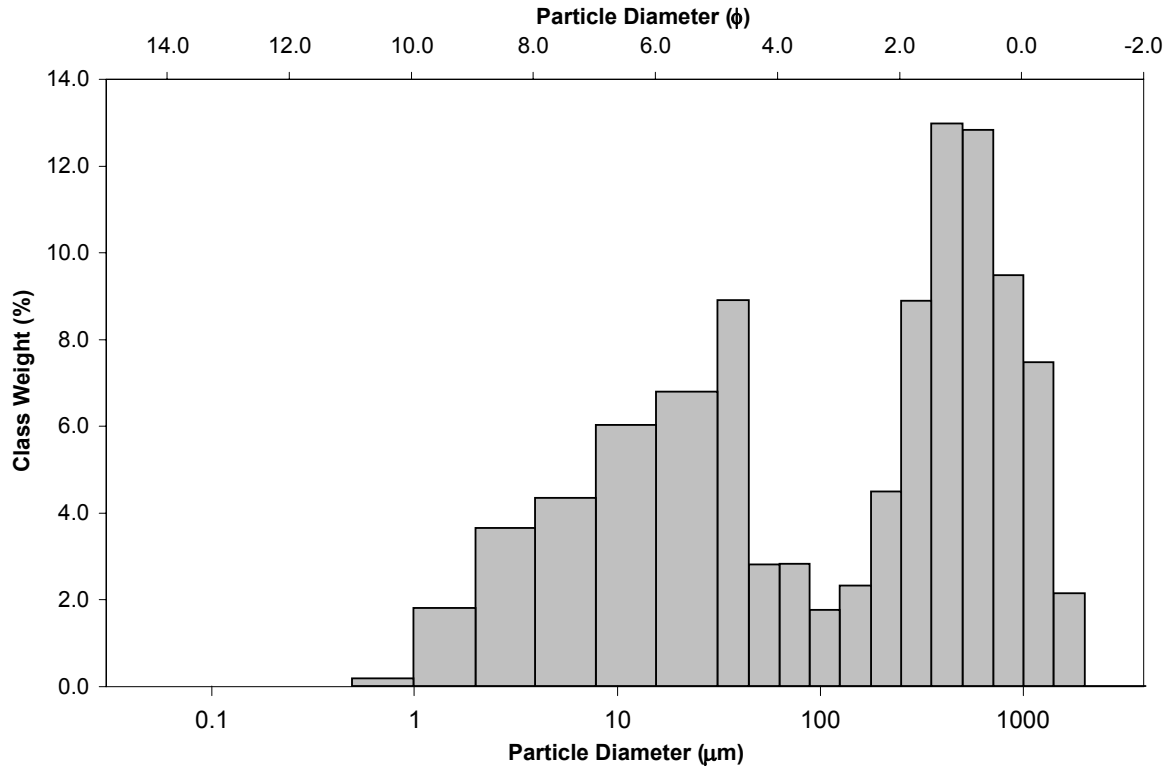
	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:	37.50	4.759
MODE 3:	75.25	3.753
D_{10}:	4.266	0.140
MEDIAN or D_{50}:	113.1	3.144
D_{90}:	907.2	7.873
(D_{90} / D_{10}):	212.7	56.06
(D_{90} - D_{10}):	903.0	7.732
(D_{75} / D_{25}):	35.69	6.437
(D_{75} - D_{25}):	503.6	5.157

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	18.3%
SAND:	53.3%	MEDIUM SAND:	18.0%
MUD:	46.7%	FINE SAND:	5.6%
		V FINE SAND:	3.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	9.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	11.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	9.8%
FINE GRAVEL:	0.0%	FINE SILT:	7.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	5.8%
V COARSE SAND:	7.8%	CLAY:	3.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	322.5	80.69	3.631	84.57	3.564	Very Fine Sand
SORTING (σ):	398.9	7.870	2.976	7.883	2.979	Very Poorly Sorted
SKEWNESS (Sk):	1.409	-0.317	0.317	-0.218	0.218	Fine Skewed
KURTOSIS (K):	4.542	1.790	1.790	0.709	0.709	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 22.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Coarse Silty Coarse Sand

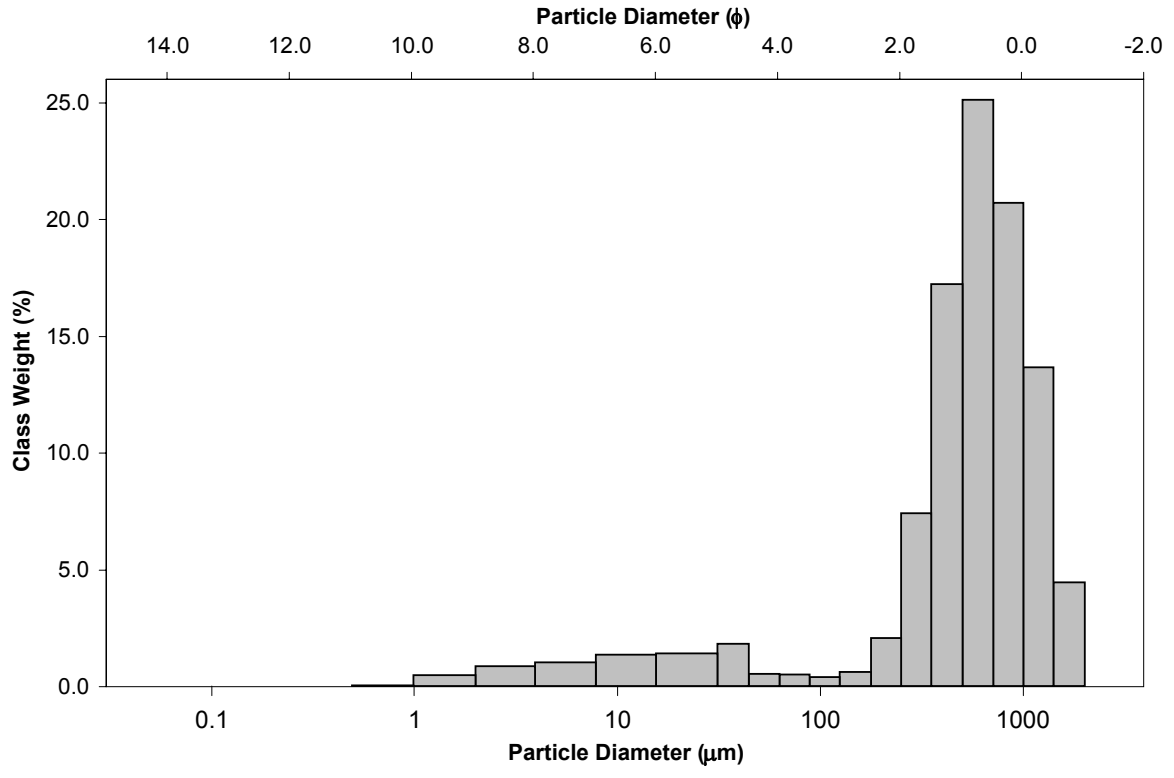
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	32.48	-0.276
MEDIAN or D_{50}:	585.2	0.773
D_{90}:	1210.9	4.944
(D_{90} / D_{10}):	37.28	-17.910
(D_{90} - D_{10}):	1178.4	5.220
(D_{75} / D_{25}):	2.350	7.217
(D_{75} - D_{25}):	500.7	1.233

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	43.7%
SAND:	88.0%	MEDIUM SAND:	23.7%
MUD:	12.0%	FINE SAND:	2.5%
		V FINE SAND:	0.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.7%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.6%
FINE GRAVEL:	0.0%	FINE SILT:	1.9%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.6%
V COARSE SAND:	17.2%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	641.5	383.4	1.383	537.5	0.896	Coarse Sand
SORTING (σ):	411.2	4.376	2.130	3.043	1.605	Poorly Sorted
SKEWNESS (Sk):	0.561	-2.131	2.131	-0.421	0.421	Very Fine Skewed
KURTOSIS (K):	3.138	6.975	6.975	2.423	2.423	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 27.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

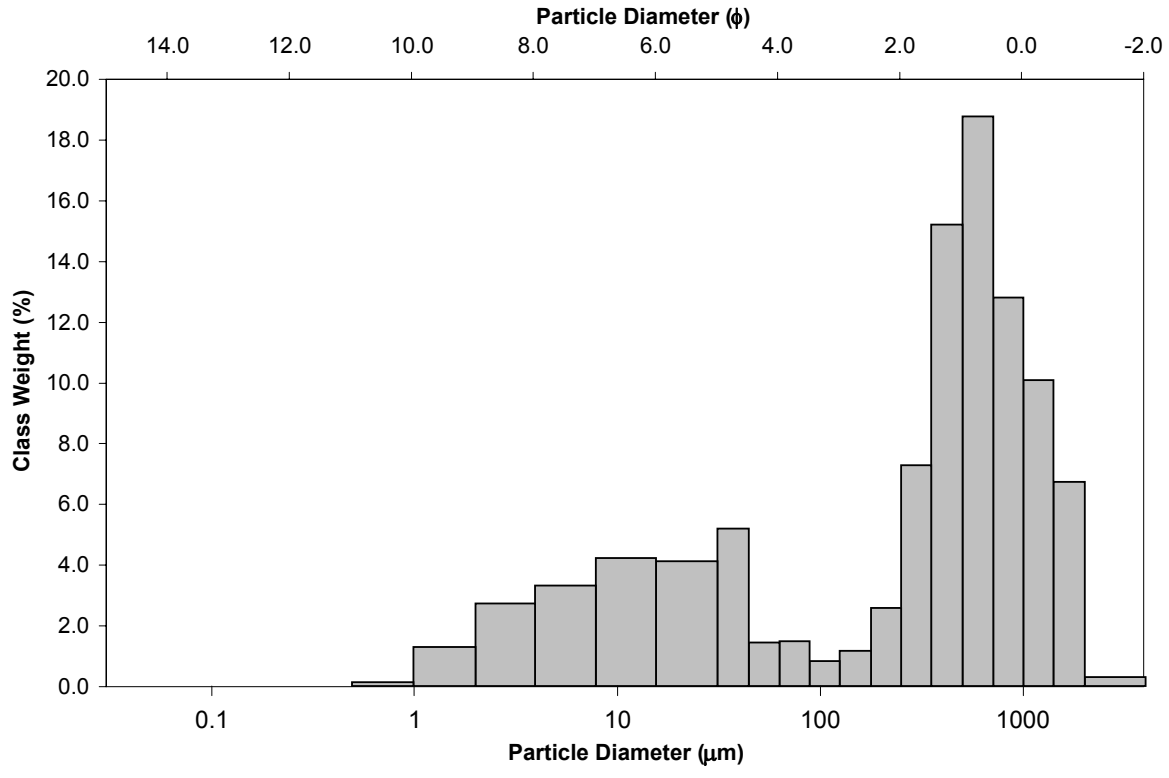
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:	11.70	6.502
D_{10}:	5.584	-0.287
MEDIAN or D_{50}:	407.7	1.294
D_{90}:	1219.7	7.484
(D_{90} / D_{10}):	218.4	-26.123
(D_{90} - D_{10}):	1214.1	7.771
(D_{75} / D_{25}):	28.85	11.68
(D_{75} - D_{25}):	704.7	4.851

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.5%	COARSE SAND:	27.3%
SAND:	66.6%	MEDIUM SAND:	19.6%
MUD:	32.9%	FINE SAND:	3.2%
		V FINE SAND:	2.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	7.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	7.3%
FINE GRAVEL:	0.0%	FINE SILT:	5.7%
V FINE GRAVEL:	0.5%	V FINE SILT:	4.6%
V COARSE SAND:	14.5%	CLAY:	2.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	500.4	155.3	2.687	161.3	2.632	Fine Sand
SORTING (σ):	511.7	8.018	3.003	7.992	2.998	Very Poorly Sorted
SKEWNESS (Sk):	1.319	-0.788	0.788	-0.597	0.597	Very Fine Skewed
KURTOSIS (K):	5.313	2.242	2.242	0.764	0.764	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 32.5**

ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted

TEXTURAL GROUP: Muddy Sand

SEDIMENT NAME: Very Coarse Silty Coarse Sand

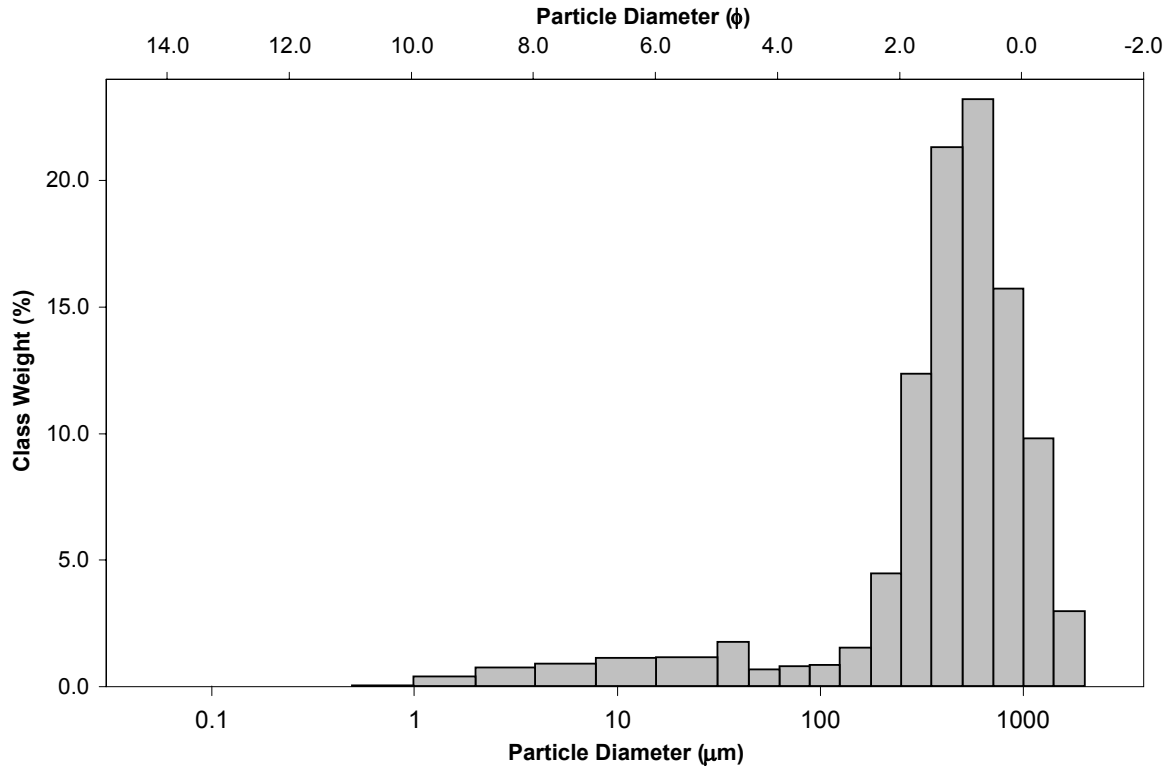
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	44.53	-0.115
MEDIAN or D_{50}:	496.5	1.010
D_{90}:	1083.3	4.489
(D_{90} / D_{10}):	24.33	-38.887
(D_{90} - D_{10}):	1038.8	4.604
(D_{75} / D_{25}):	2.420	3.997
(D_{75} - D_{25}):	436.9	1.275

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	37.4%
SAND:	89.4%	MEDIUM SAND:	32.5%
MUD:	10.6%	FINE SAND:	5.7%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.2%
FINE GRAVEL:	0.0%	FINE SILT:	1.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	1.4%
V COARSE SAND:	12.2%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	563.0	350.5	1.513	460.2	1.120	Medium Sand
SORTING (σ):	378.8	3.918	1.970	2.968	1.570	Poorly Sorted
SKEWNESS (Sk):	0.857	-2.157	2.157	-0.377	0.377	Very Fine Skewed
KURTOSIS (K):	3.762	7.561	7.561	2.219	2.219	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 37.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Silty Coarse Sand

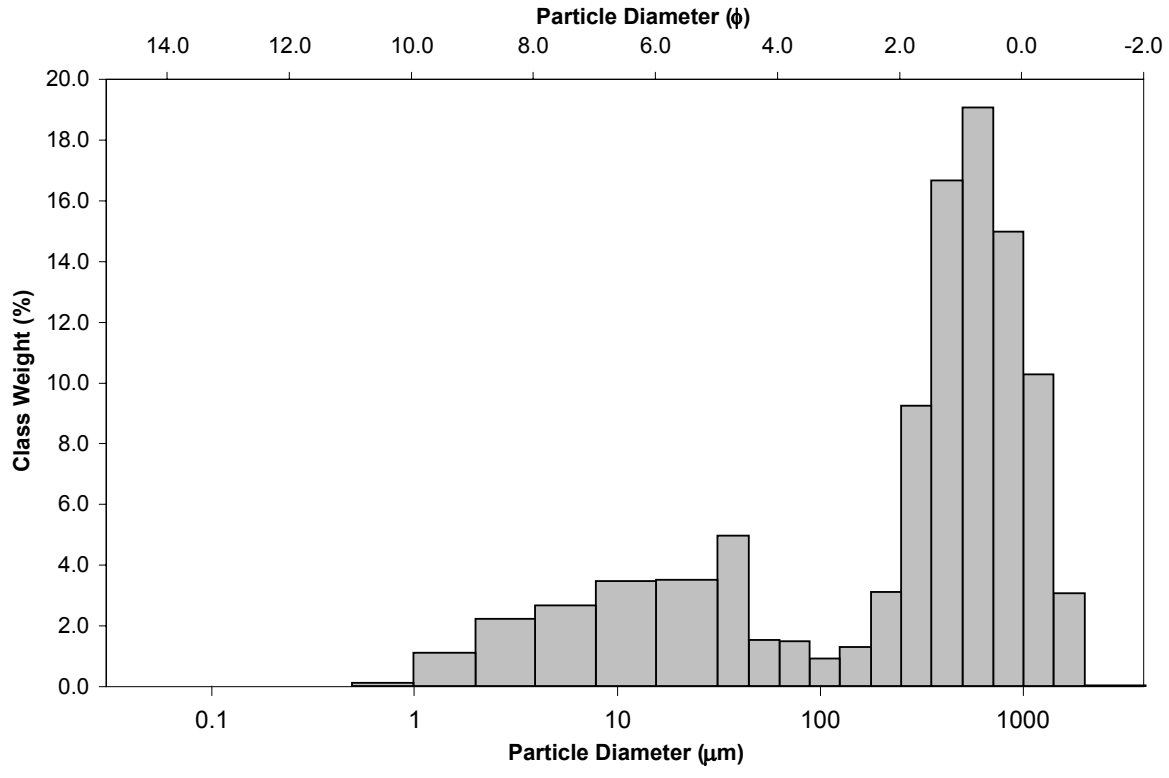
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:		
D_{10}:	6.987	-0.097
MEDIAN or D_{50}:	414.2	1.272
D_{90}:	1069.9	7.161
(D_{90} / D_{10}):	153.1	-73.460
(D_{90} - D_{10}):	1062.9	7.259
(D_{75} / D_{25}):	19.59	9.621
(D_{75} - D_{25}):	672.0	4.292

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	30.2%
SAND:	71.1%	MEDIUM SAND:	23.1%
MUD:	28.9%	FINE SAND:	3.9%
		V FINE SAND:	2.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	6.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.1%
FINE GRAVEL:	0.0%	FINE SILT:	4.7%
V FINE GRAVEL:	0.0%	V FINE SILT:	3.9%
V COARSE SAND:	11.7%	CLAY:	2.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	474.4	175.0	2.515	173.7	2.526	Fine Sand
SORTING (σ):	427.5	7.045	2.817	6.987	2.805	Very Poorly Sorted
SKEWNESS (Sk):	0.876	-0.995	0.995	-0.624	0.624	Very Fine Skewed
KURTOSIS (K):	3.509	2.681	2.681	0.824	0.824	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 42.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

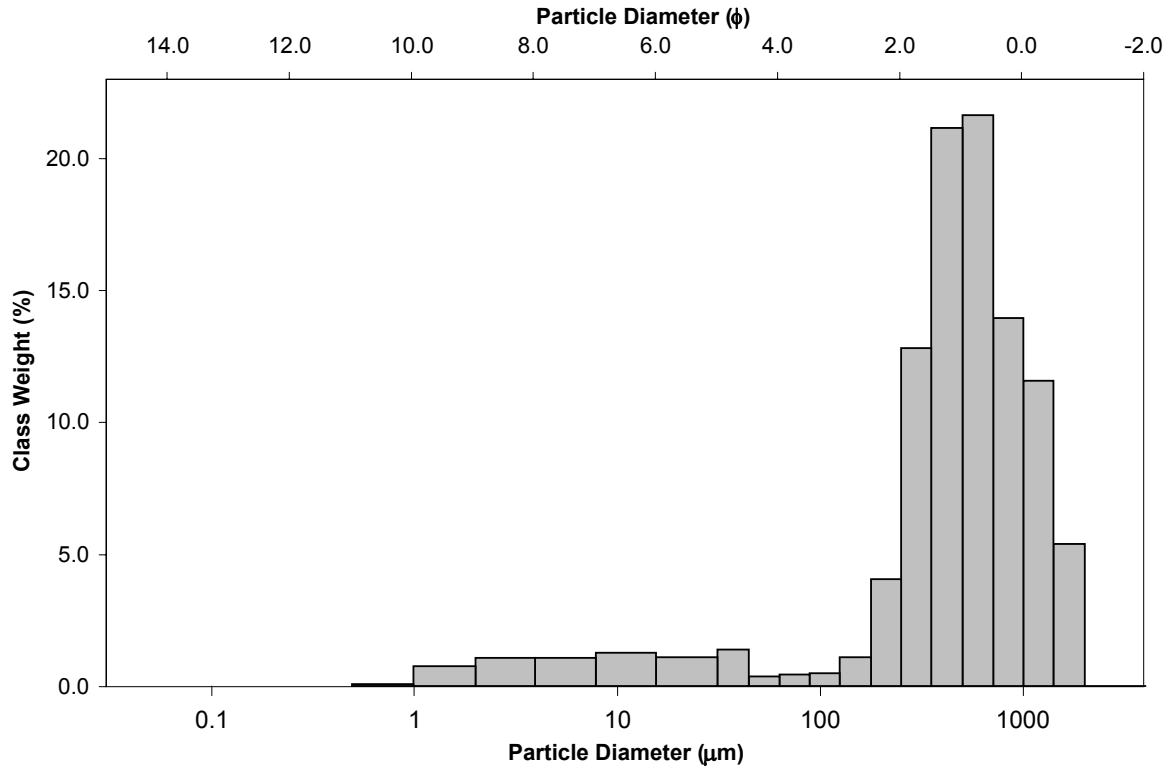
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	30.13	-0.277
MEDIAN or D_{50}:	499.8	1.001
D_{90}:	1211.8	5.053
(D_{90} / D_{10}):	40.22	-18.235
(D_{90} - D_{10}):	1181.6	5.330
(D_{75} / D_{25}):	2.561	5.035
(D_{75} - D_{25}):	482.8	1.357

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	33.9%
SAND:	88.2%	MEDIUM SAND:	32.5%
MUD:	11.8%	FINE SAND:	4.9%
		V FINE SAND:	0.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	2.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	2.4%
FINE GRAVEL:	0.0%	FINE SILT:	2.0%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.0%
V COARSE SAND:	16.1%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	593.5	339.6	1.558	477.8	1.066	Medium Sand
SORTING (σ):	425.0	4.614	2.206	3.329	1.735	Poorly Sorted
SKEWNESS (Sk):	0.926	-2.080	2.080	-0.350	0.350	Very Fine Skewed
KURTOSIS (K):	3.686	6.884	6.884	2.360	2.360	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 47.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

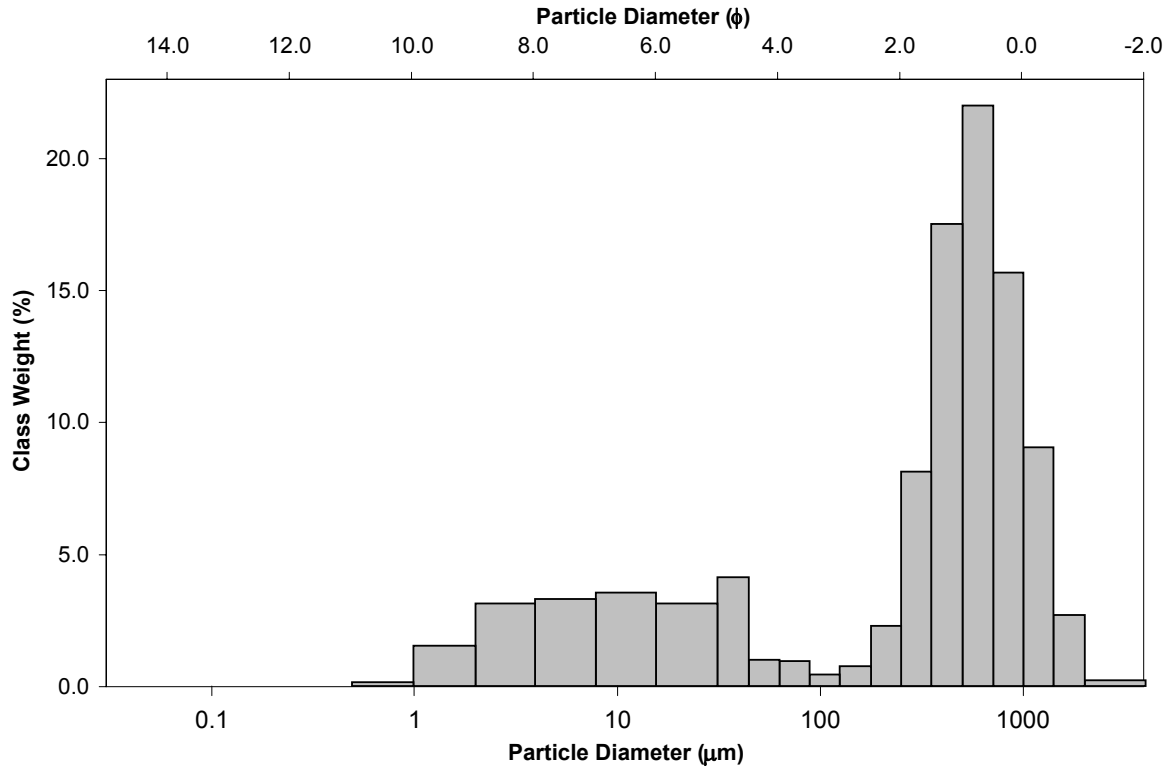
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:	11.70	6.502
D_{10}:	4.809	-0.035
MEDIAN or D_{50}:	430.8	1.215
D_{90}:	1024.4	7.700
(D_{90} / D_{10}):	213.0	-221.385
(D_{90} - D_{10}):	1019.6	7.735
(D_{75} / D_{25}):	24.30	9.869
(D_{75} - D_{25}):	669.1	4.603

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.4%	COARSE SAND:	32.9%
SAND:	69.5%	MEDIUM SAND:	22.6%
MUD:	30.1%	FINE SAND:	2.7%
		V FINE SAND:	1.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	4.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	5.5%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.2%
FINE GRAVEL:	0.0%	FINE SILT:	5.7%
V FINE GRAVEL:	0.4%	V FINE SILT:	5.4%
V COARSE SAND:	10.2%	CLAY:	2.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	476.3	161.0	2.635	154.2	2.698	Fine Sand
SORTING (σ):	440.6	7.978	2.996	7.870	2.976	Very Poorly Sorted
SKEWNESS (Sk):	1.285	-0.961	0.961	-0.668	0.668	Very Fine Skewed
KURTOSIS (K):	6.453	2.477	2.477	0.797	0.797	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 52.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

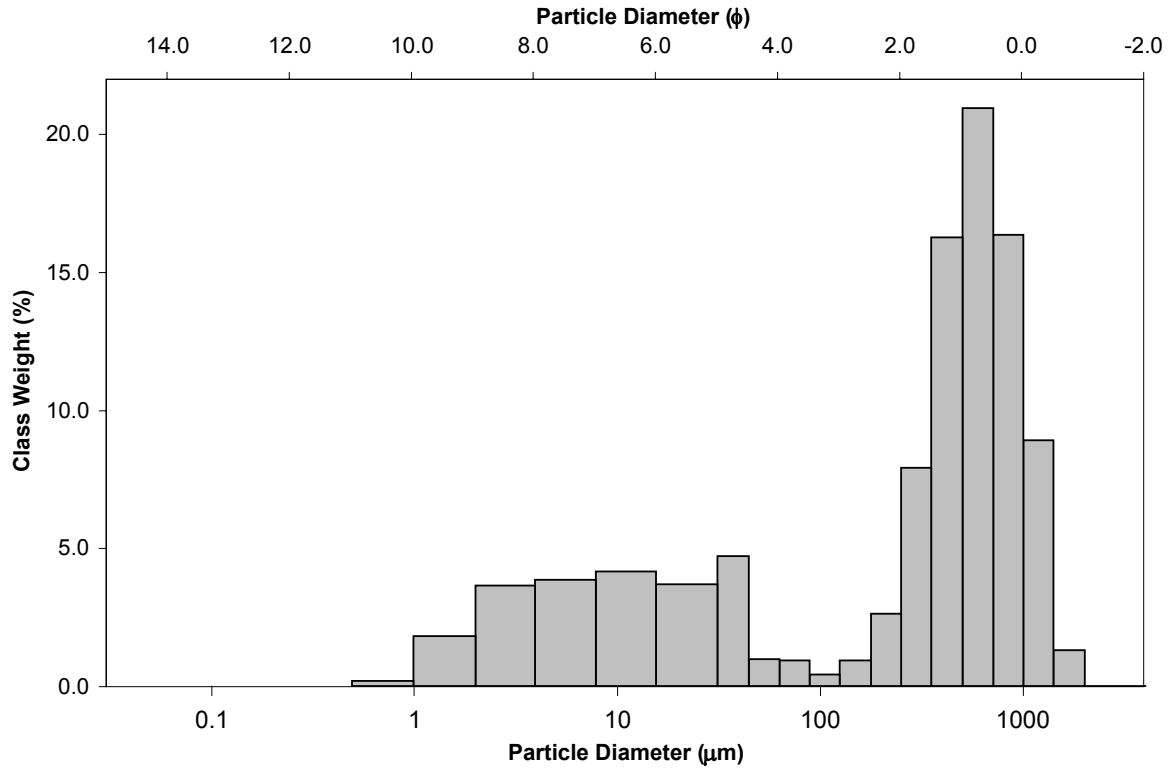
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:	11.70	6.502
D_{10}:	4.110	0.048
MEDIAN or D_{50}:	395.3	1.339
D_{90}:	967.6	7.927
(D_{90} / D_{10}):	235.4	166.8
(D_{90} - D_{10}):	963.5	7.879
(D_{75} / D_{25}):	35.60	10.13
(D_{75} - D_{25}):	657.1	5.154

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	31.9%
SAND:	65.6%	MEDIUM SAND:	20.9%
MUD:	34.4%	FINE SAND:	3.0%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	4.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	6.3%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	7.1%
FINE GRAVEL:	0.0%	FINE SILT:	6.6%
V FINE GRAVEL:	0.0%	V FINE SILT:	6.1%
V COARSE SAND:	8.7%	CLAY:	3.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	429.9	131.5	2.927	136.5	2.873	Fine Sand
SORTING (σ):	397.2	8.498	3.087	8.266	3.047	Very Poorly Sorted
SKEWNESS (Sk):	0.706	-0.791	0.791	-0.664	0.664	Very Fine Skewed
KURTOSIS (K):	2.908	2.119	2.119	0.713	0.713	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 57.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

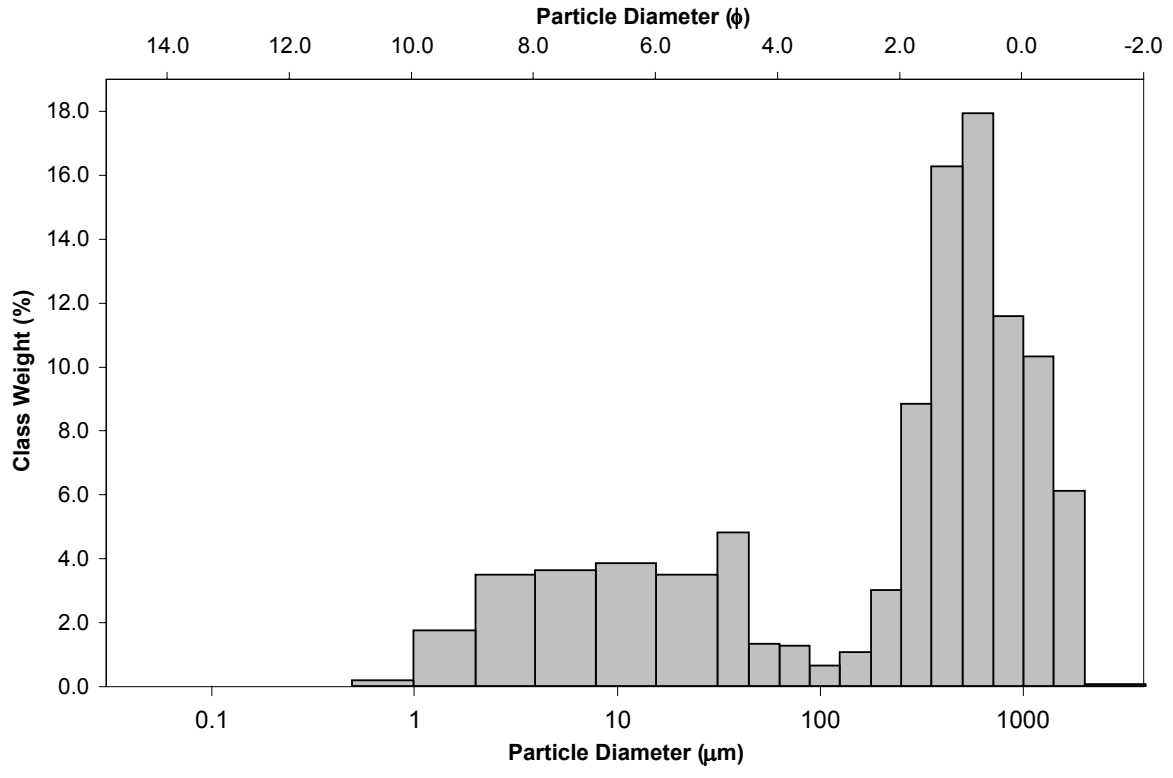
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	37.50	4.759
MODE 3:	11.70	6.502
D_{10}:	4.266	-0.239
MEDIAN or D_{50}:	387.3	1.368
D_{90}:	1179.9	7.873
(D_{90} / D_{10}):	276.6	-32.986
(D_{90} - D_{10}):	1175.6	8.112
(D_{75} / D_{25}):	31.90	10.54
(D_{75} - D_{25}):	673.7	4.996

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	25.4%
SAND:	66.5%	MEDIUM SAND:	21.8%
MUD:	33.4%	FINE SAND:	3.5%
		V FINE SAND:	1.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	6.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.7%
FINE GRAVEL:	0.0%	FINE SILT:	6.3%
V FINE GRAVEL:	0.1%	V FINE SILT:	5.9%
V COARSE SAND:	14.1%	CLAY:	3.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	475.5	141.1	2.825	144.4	2.792	Fine Sand
SORTING (σ):	480.0	8.565	3.098	8.617	3.107	Very Poorly Sorted
SKEWNESS (Sk):	1.113	-0.787	0.787	-0.606	0.606	Very Fine Skewed
KURTOSIS (K):	4.011	2.190	2.190	0.758	0.758	Platykurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 62.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

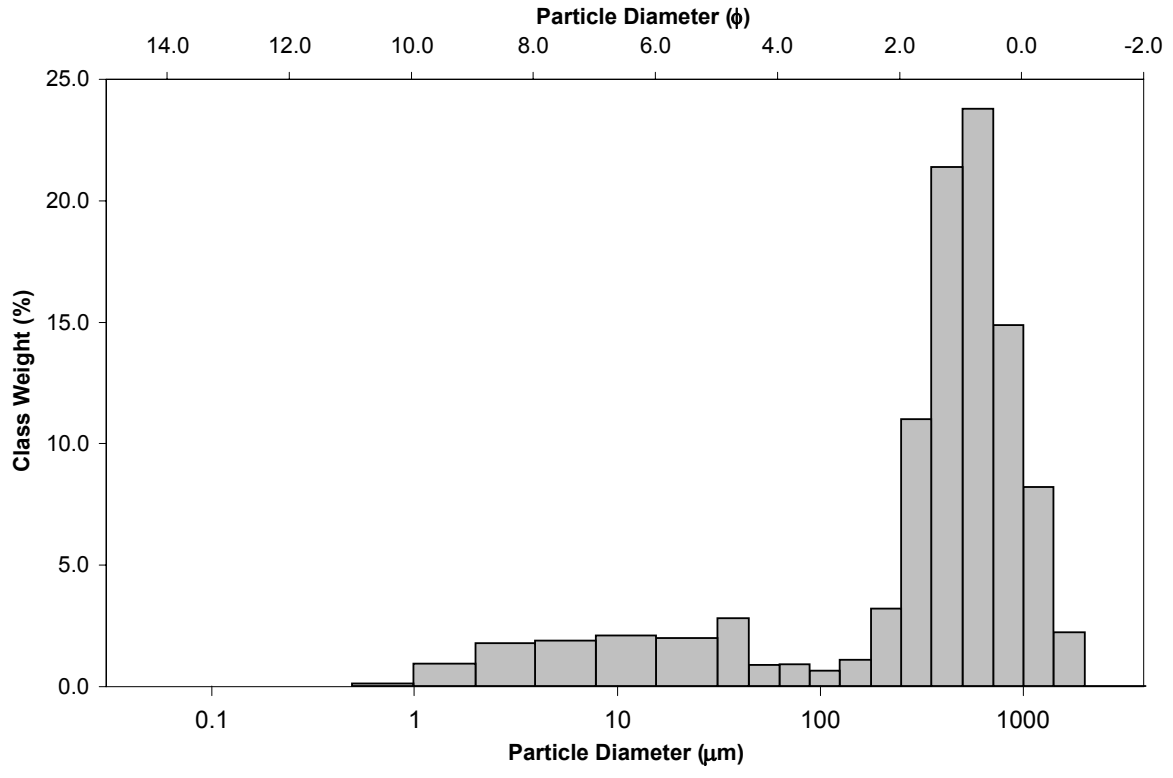
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	10.06	0.016
MEDIAN or D_{50}:	459.3	1.123
D_{90}:	989.1	6.635
(D_{90} / D_{10}):	98.30	418.6
(D_{90} - D_{10}):	979.0	6.619
(D_{75} / D_{25}):	2.733	3.695
(D_{75} - D_{25}):	436.6	1.450

GRAIN SIZE DISTRIBUTION

GRAVEL: 0.0%	COARSE SAND: 35.6%
SAND: 80.5%	MEDIUM SAND: 30.0%
MUD: 19.5%	FINE SAND: 3.9%
	V FINE SAND: 1.4%
V COARSE GRAVEL: 0.0%	V COARSE SILT: 3.4%
COARSE GRAVEL: 0.0%	COARSE SILT: 3.6%
MEDIUM GRAVEL: 0.0%	MEDIUM SILT: 3.9%
FINE GRAVEL: 0.0%	FINE SILT: 3.5%
V FINE GRAVEL: 0.0%	V FINE SILT: 3.2%
V COARSE SAND: 9.5%	CLAY: 1.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	502.7	240.3	2.057	229.1	2.126	Fine Sand
SORTING (σ):	380.4	5.796	2.535	5.505	2.461	Very Poorly Sorted
SKEWNESS (Sk):	0.830	-1.543	1.543	-0.644	0.644	Very Fine Skewed
KURTOSIS (K):	3.995	4.250	4.250	2.359	2.359	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 67.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Unimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Coarse Sand

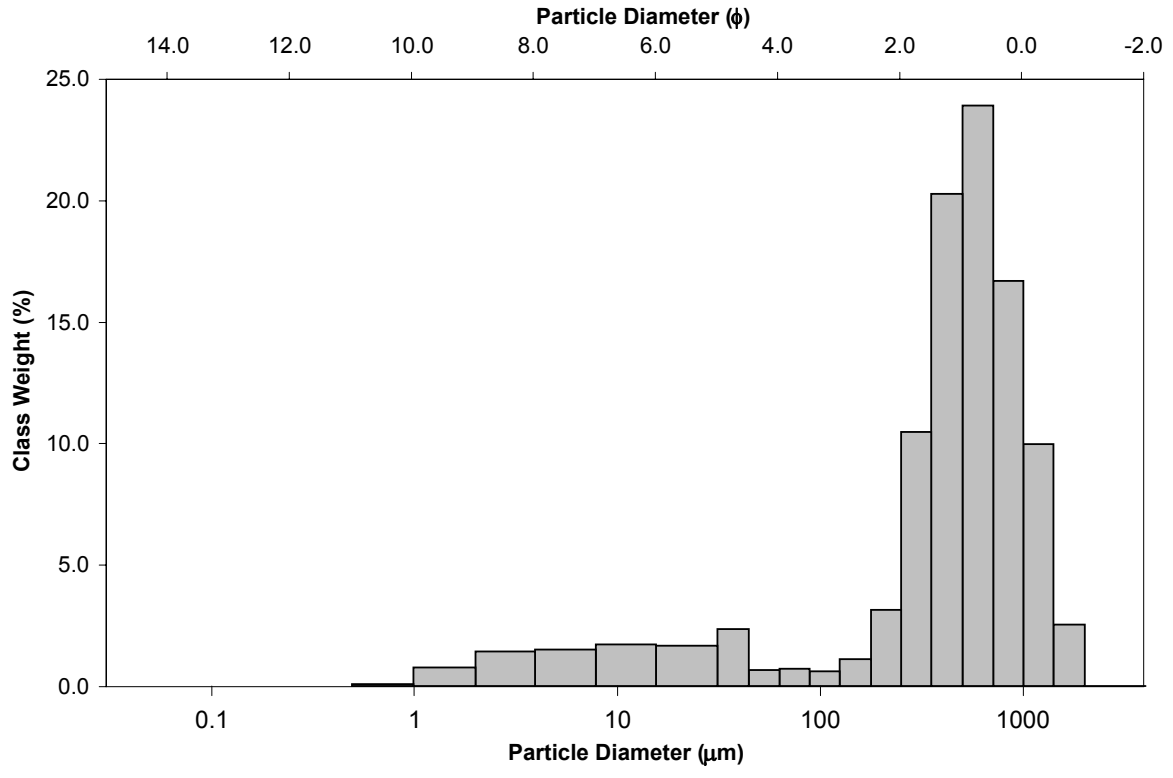
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	14.71	-0.088
MEDIAN or D_{50}:	496.4	1.010
D_{90}:	1063.0	6.087
(D_{90} / D_{10}):	72.28	-69.107
(D_{90} - D_{10}):	1048.3	6.175
(D_{75} / D_{25}):	2.615	4.233
(D_{75} - D_{25}):	458.7	1.387

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	38.0%
SAND:	83.8%	MEDIUM SAND:	29.0%
MUD:	16.2%	FINE SAND:	3.9%
		V FINE SAND:	1.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	2.8%
COARSE GRAVEL:	0.0%	COARSE SILT:	3.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	3.2%
FINE GRAVEL:	0.0%	FINE SILT:	2.8%
V FINE GRAVEL:	0.0%	V FINE SILT:	2.6%
V COARSE SAND:	11.6%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	543.5	284.0	1.816	293.8	1.767	Medium Sand
SORTING (σ):	387.9	5.246	2.391	4.688	2.229	Very Poorly Sorted
SKEWNESS (Sk):	0.740	-1.763	1.763	-0.614	0.614	Very Fine Skewed
KURTOSIS (K):	3.685	5.157	5.157	2.391	2.391	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



SAMPLE STATISTICS

SAMPLE IDENTITY: **Pit 4: 72.5** ANALYST & DATE: Gomes, Fall 07

SAMPLE TYPE: Trimodal, Very Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Silty Medium Sand

	μm	ϕ
MODE 1:	425.0	1.257
MODE 2:	37.50	4.759
MODE 3:	11.70	6.502
D_{10}:	5.042	0.476
MEDIAN or D_{50}:	318.4	1.651
D_{90}:	719.0	7.632
(D_{90} / D_{10}):	142.6	16.04
(D_{90} - D_{10}):	714.0	7.156
(D_{75} / D_{25}):	16.71	5.121
(D_{75} - D_{25}):	474.7	4.063

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.6%
SAND:	69.2%	MEDIUM SAND:	34.8%
MUD:	30.8%	FINE SAND:	6.7%
		V FINE SAND:	2.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	5.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	5.9%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	6.0%
FINE GRAVEL:	0.0%	FINE SILT:	5.4%
V FINE GRAVEL:	0.0%	V FINE SILT:	5.1%
V COARSE SAND:	3.9%	CLAY:	2.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	ϕ	μm	ϕ	
MEAN ($\bar{x}$):	346.9	129.3	2.951	127.6	2.971	Fine Sand
SORTING (σ):	318.8	6.864	2.779	6.767	2.759	Very Poorly Sorted
SKEWNESS (Sk):	1.158	-0.967	0.967	-0.652	0.652	Very Fine Skewed
KURTOSIS (K):	4.975	2.594	2.594	0.857	0.857	Platykurtic

GRAIN SIZE DISTRIBUTION